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Are There Inherent Contradictions in Attempting to Implement Education for Sustainable Development in Schools?

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Are There Inherent Contradictions in Attempting to Implement Education for Sustainable Development in Schools?

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A thesis submitted for the degree of Doctor of Education

University of Bath
Department of Education

March 2014

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Signed on behalf of the Department of Education: .....

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Dedication

To Winifred Joyce Vare (1922-2009)
There you go Mum, I said I'd do it.
Thanks for everything. God bless.

Acknowledgments

If there's one lesson that runs through this thesis, it's that every achievement is a joint effort; I did not complete this work alone. Identifying people by name is always a fraught business and in the case of the teachers and headteachers who volunteered to be interviewed, it would be unethical to name them here so let me start with them. All fifteen of you gave up your time willingly to a complete stranger. Without your time, your honesty and your continued interest in returning transcripts and the perspective document, I would have no thesis to submit, so thank you.

Special thanks are also due to Mark Stead and Rupert Brakspear who went out of their way to help me contact the study schools, to David Child who gave up hours of his time in the early stages of this research and Professor Bill Scott who took the trouble to read and comment on the chapters as they started to appear. Of course I am indebted to my supervisor Professor Steve Gough for bearing with me over the false starts and slow re-building, for introducing me to dilemma analysis and above all for not giving up on me while I "spent years saying apparently disconnected magic words" to you.

The last word must go to my family, Natalie, Asha and Bathsheba, for being there when, for all that time, I wasn't.

PV

Abstract

Despite being ranked according to narrow measures of pupil achievement, many schools aim to become more sustainable. Faced with indicators suggesting the rapid degradation of social-ecological systems, these schools would prefer *not* to be part of the problem. However, environmental education/education for sustainable development (EE/ESD) in schools does not reflect the transformative rhetoric of academic discourse. Research into this 'rhetoric-reality gap' has focused either on academic discourse or the psychology of individual teachers; there is a lack of critical research on teachers-in-context.

This enquiry explores the notion of inherent contradictions in developing a sustainable school (however subjects define this). It applies an Activity Theory framework designed to identify contradictions within 'activity systems' (e.g. schools). The primary method is a semi-structured interview conducted with fifteen teachers/headteachers in twelve schools (primary and secondary). The thesis offers a resource-efficient qualitative interview process that can bring Activity Theory to school-based research with minimum disruption and outlines a streamlined process of dilemma analysis.

The data highlights contradictions in the way that schools conduct EE/ESD noting that these are often not recognised by educators themselves. Five different responses to contradictions are identified, including 'expansive learning' that redefines the activity itself. In terms of an ESD1/ESD2 framework, this might be termed 'ESD 3'. Four approaches that schools may adopt in relation to sustainability are also outlined.

An empowering vision of schools – and society – as autopoietic systems, i.e. as both products *and* producers, suggests that social reality is not as inevitable as it seems. By confronting contradictions, educators demonstrate the adaptive capacity required by young people if they are to engage in remodelling their world.

Finally, the thesis proposes combining a two-sided conception of ESD with Activity Theory, potentially to the mutual benefit of both. Investigating this further is one of a number of options for further research.

(300 words)

List of abbreviations

DWR	: Development Work Research
EE/ESD	: Environmental Education/ Education for Sustainable Development
ESD	: Education for Sustainable Development
CHAT	: Cultural-historical Activity Theory
DCSF	: Department for Children Schools and Families
DES	: Department for Education and Science
DfE	: Department for Education
LEA	: Local Education Authority
MPhil	: Masters of Philosophy
NFSS	: National Framework for Sustainable Schools
NGO	: Non-governmental organisation
OECD	: Organisation for Cooperation and Development
SD	: Sustainable Development
UNECE	: United Nations Economic Commission for Europe
UNEP	: United Nations Environment Programme
UNESCO	: United Nations Education Science and Culture Organisation
UNISDR	: United Nations International Strategy for Disaster Reduction
WCED	: World Commission on Environment and Development

Chapter One The Research Problem and Purpose

1.1 Introduction

1.1.1 Education and the banality of ecocide

Adolf Eichmann sat in a bulletproof glass booth built for his own protection. Virtually lost in the theatre of a Jerusalem courtroom in 1964, he sat alone, a man of medium size, "slender, middle aged, with receding hair, ill-fitting teeth, and nearsighted eyes" (Arendt 1994: 5), charged for his part in the genocide of the Jewish people.

Far from expressing outrage at Eichmann, the Jewish reporter and philosopher Hannah Arendt was struck by the ordinariness of the man and his preoccupation with 'doing a good job,' with apparently little heed for the wider implications of his diligence. Reflecting on this spectacle, she famously coined the term 'the banality of evil' to describe the tendency in ordinary people to commit evil thoughtlessly because of a failure to think critically.

In the wake of The Holocaust, the United Nations began work on defining Crimes Against the Peace and Security of Mankind (UN 2005). The understanding that ecological damage can threaten our peace and security was reflected in attempts to make *ecocide* the fifth Crime Against Peace (Gauger *et al* 2012). Since the 1970s, numerous United Nations committees have met to discuss whether ecocide could be considered a crime in this way.

We are frequently reminded that our impacts on the biosphere, including the rapid loss of biodiversity (Vie *et al* 2009) and anthropogenic climate change (Pachauri & Reisinger 2007), combined with the growing inequalities among people across the world, threaten our wellbeing if not the habitability of the Earth (Orr 2004). But does any sane person set out to accelerate the annihilation of humanity? In common with Eichmann, we generally aim to 'do a good job'; however, we often lack a critical awareness of how our trivial, commonplace actions are cumulatively perpetrating an ecocide of unimaginable complexity.

In addressing this situation, environmental education (EE) and later, education for sustainable development (ESD) has sought to make a specific contribution by promoting awareness of our environmental and social challenges and to inculcate critical thinking. International agreements and proclamations on EE/ESD have flowed (Sato 2006), supported by a considerable body of research (e.g. Stevenson *et al* 2013). Consequently there is no shortage of argument in favour of education having a central role in the global effort to secure humanity's long-term wellbeing.

The lack of impact of all this argument and policy-making at the level of the individual school has been a matter of concern for at least a quarter of a century (Stevenson 1987, 2007a&b). It is a concern that inspired this research enquiry.

1.1.2 About this thesis

The aims of this thesis are to:

- Test notions of inherent contradictions in the development of sustainable schools
- Show the extent to which a framework based on Cultural-historical Activity Theory can contribute to the analysis of learning for sustainability in a range of schools and other settings

In achieving the first of these aims, this research sets out to meet the following four objectives:

- Explore the extent to which trying to make a school more sustainable gives rise to contradictions within the activity system of schools in the English state school system
- Identify the extent to which such contradictions are recognised as problems or dilemmas by the teachers and headteachers who confront them in their work
- Where appropriate, understand how teachers rationalise or negotiate the contradictions and dilemmas they encounter
- Contribute to a wider understanding of the practical and theoretical implications of contradictions within sustainable schools

Rather than assessing practice in schools against policy discourse, Stephenson (2007a) argues for policy discourse itself to be "re-examined in relation to teachers' practical theories and the contexts shaping their practices." (*Ibid*: 266) This thesis takes up that challenge by exploring teachers' perceptions of contradictions, using Cultural-historical Activity Theory (Engeström 1987; 1999; 2002) to frame the analysis.

1.1.3 What this thesis is not about

While this research is stimulated by the notion of a 'gap' between practice in schools and discourse, rhetoric or espoused policy, this thesis does not aim to provide an extensive critique of policy *per se*. Bowe and Ball (1992) identify a cyclical relationship between policy and implementation, noting how even detailed policies "*have intended and unintended consequences for both education and its surrounding social milieu*" (Bowe & Ball 1992: 19). Fig 1.1 illustrates this continuous policy cycle.

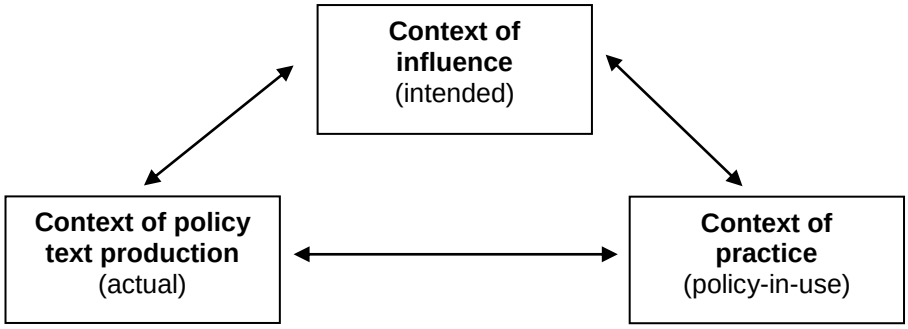

Fig. 1.1 The continuous policy process (Source: Bowe and Ball 1992)

Beyond the literature review, which provides a brief historical overview of relevant policy, the focus of this research is on the right hand box in Fig. 1.1.

The drawback of taking an *activity system* as the unit of analysis is that depth in specific areas is sacrificed in order to achieve the breadth required to gain an overview of the whole system. This means that teachers' own environmental attitudes or behaviours are not explored in depth, neither are their own epistemologies or theories of learning. Work in these areas (Young 1981; Barrett 2007; Boulton-Lewis *et al.* 2001; Cotton 2006) does inform the research and while these dimensions emerge from the data, the focus remains the *activity system* of the school.

In narrowing the focus further on contradictions and possible dilemmas, the research does not dwell on the social-psychological dimensions of dilemmas; rather the aim is to identity organisational and systemic contradictions that may exist in the context of learning for sustainability with or without individual actors being conscious of them.

A central concern of the exploration of any activity system is the question of desired outcomes and how this plays out *within* the system but this thesis cannot extend to the evaluation of impacts on learners themselves.

Lastly, this thesis is not about the concept of sustainable development *per se* although a brief critical review is a necessary first step in the literature review.

1.1.4 A summary of the argument

Humanity is beset by 'wicked' or intractable problems. The degradation of Earth's bio-physical systems and vast disparities in wealth combine to threaten the stability of the social-ecological systems that support our growing numbers. It may not be the role of education to resolve this but for schools to ignore such issues would ensure that they remain part of the problem. Over 35 years after the Tbilisi inter-governmental conference on environmental education (UNESCO-UNEP 1978), EE/ESD in most English schools falls well short of the transformative rhetoric of academic discourse or even the modest ambitions of governments.

Research into this 'rhetoric-reality gap' has focused either on the academic discourse itself or the experience and perceptions of individual teachers. There is a lack of critical research on teachers-in-context as they attempt to make their schools more sustainable. Activity Theory (Engeström 1999) is designed to explore the inter-relationships within an 'activity system' (e.g. a school) paying particular attention to identifying contradictions within the system.

In this enquiry, interviews with fifteen teachers in twelve schools generate qualitative data that reveal inherent contradictions in making a school more sustainable. Yet far from feeling conflicted, professionals appear generally satisfied that they are doing as well as can be expected in relation to their own objectives. Indeed teachers seem adept at managing dilemmatic situations. In some cases activity is re-cast through 'expansive learning', that is adopting novel approaches by expanding the object of their activity in order to overcome apparent contradictions (see section 3.1.3). As professionals negotiate these situations, they exemplify the adaptive capacity or resilience that is the hallmark of learning *as* sustainability.

Schools appear to settle into an approach to sustainability that suits their level of commitment; difficulties arise where teachers are at odds with the approach in their own school. EE/ESD activity in schools is dominated by an instrumental ESD 1 approach (Vare & Scott 2007) while learning throughout the activity system exemplifies an intrinsic ESD 2. Making this explicit would contribute to EE/ESD at no additional cost to the school.

The complexity of Activity Theory is seen as a likely barrier to its wider use although this enquiry has reduced the framework to a questionnaire that can guide subjects effectively around an activity system. The nature of 'expansive learning' suggests an outcome that, in the context of EE/ESD, might be cast as the emergent product of ESD 1 and ESD 2, i.e. *ESD 3*.

1.2 Background to the research

1.2.1 My personal involvement with the topic

After a short teaching career in secondary schools in England and Tanzania, I became involved in environmental education, firstly running events, teachers' courses and campaigns in Leicestershire and then working as part of a multi-disciplinary team around Mount Elgon

National Park, Uganda. This was followed by senior management positions in voluntary sector organisations mostly focused on education and sustainable development projects overseas while maintaining an interest in learning for sustainability in formal and non-formal education in South West England.

In my MPhil thesis, which explored people's sources of information and motivation for taking positive environmental action, I adopted a broad view of environmental education foreshadowing the arrival of *education for sustainable development*. The insights gained in this study led to my development of a strategic, multi-layered approach to non-formal education and communication that underpinned the work of Living Earth Foundation, an international NGO. I was asked to share this at various gatherings including a conference in Japan in 2001 and at Bath University the following year.

For over ten years I was involved in various expert groups of the United Nations Economic Commission for Europe (UNECE) in support of the UNECE Strategy on Education for Sustainable Development. Before taking up a senior lecturer position recently, I worked as a consultant with an international portfolio of evaluation, writing and training assignments in the field of education for sustainable development (ESD). I continue to run a network of organisations concerned with ESD in the South West of England.

Notwithstanding my work in five continents with people from all walks of life, schooling in England has remained a central interest. This research enquiry presents an opportunity to better understand the tensions inherent in implementing ESD within schools on my doorstep.

1.2.2 The sustainable schools project evaluation

This assignment was undertaken between 2009 and 2011; the task was to develop monitoring and evaluation tools and conduct a formative evaluation of a sustainable schools support project sponsored by an international food company. Being a commercial contract, the three reports submitted to the company are not available for publication.

The programme involved a number of ESD service providers (an NGO, a private water company and local authority services) visiting ten primary and two special schools to work with teachers and pupils on selected themes or 'doorways' of the National Framework for Sustainable Schools (DCSF 2008).

Bounded by the parameters of the contract, it was not possible to pursue some areas of interest that emerged during the study, these included:

(i) the extent to which this focus on sustainability might actually conflict with teachers' roles

(ii) the extent to which the whole school community was genuinely in support of sustainability (or needed to be)

(iii) how this work might apply differently in secondary schools.

It was the first of these aspects that became the primary focus of this research.

1.2.3 Earlier Assignments

As well as personal and professional experience, this thesis draws on work completed in partial fulfilment of the EdD programme. ESD has featured in all four of these assignments:

First assignment: *To what extent do international declarations influence domestic education policy?: The case of the UNECE Strategy for Education for Sustainable Development*
Giddens' (1991) concept of *Structuration* suggests that the possibility for change is ever present as rules are used in any social setting. On the one hand this helps to explain how change is taking place in a given setting while on the other it offers hope to those who feel that they are 'battling against the odds' in their efforts to bring about positive change in their own institution. The identification of *courage* provides an additional lens through which to view the decisions and actions of respondents.

Second assignment: *From practice to theory: learning about learning in the context of sustainable development projects*
Building on the researcher's earlier (MPhil) investigation, a range of learning theories are reviewed including Bateson's (1972) work and his conception of first, second and third order learning. A two-part conception of education for sustainable development (ESD 1 and ESD 2) is developed. This paper also suggests that Cultural-historical Activity Theory resonates well with ESD.

Third assignment: *Why know? Values as 'Purpose' in Social Research*
This draws on the experience of working within the UNECE Expert Group on ESD Indicators and professional assignments in Alaska that bridged Western scientific thought and indigenous ways of knowing. In investigating the possibility of combining different ontological positions by finding common axiological ground, this work encounters what Habermas (1983) terms *the Interpretative Turn* and positions the researcher somewhere between positivist and relativist perspectives.

Fourth assignment: *What can Education for Sustainable Development do for the Curriculum?*
After reviewing the conceptual evolution of ESD and curriculum planning approaches, this paper explores the contribution of ESD 1 and 2 across a number of dimensions of curriculum planning. It suggests that a balance might be struck between instrumental and emergent approaches. This suggests that an alignment of educational purposes with the needs of sustainable development need not alienate conservative forces. This work recognises the relative insignificance of environmental and sustainable development discourse in wider debates on education policy and practice.

By exploring policy, theory and practice through the lens of ESD, these assignments have prepared the ground for a deeper analysis of ESD as it applies to a formal education setting.

1.3 The research context

1.3.2 Policy background

This research started after the Coalition Government had been in office for two years. The previous Labour Government had, for over five years before that, been encouraging schools to follow its National Framework for Sustainable Schools (NFSS) with a declared aspiration of 'every school in England being a sustainable school by 2020' (Lawson *Pers. Com.*). With the change of Government, official support for the NFSS was withdrawn and the related materials were removed from the Government website although a limited range of material has since been re-packaged and made available without widespread publicity.

Schools themselves have responded to shifting Government priorities, chiefly a narrowing of the inspection framework used by Ofsted coupled with the freedom (or pressure) to leave local authority control to become academies, either taking control of their own management

or joining a larger 'academy chain'. This in turn has led to a reduced role for local authorities in terms of their provision of professional development for teachers and their level of technical and managerial support to schools. An historical perspective on policy in relation to ESD is provided in Chapter Two.

1.3.2 The research setting

The research took place in twelve schools, six secondary, five primary and one middle school in rural and urban settings spread across two counties in the West of England (3.3 and Appendix II). Each school had been involved in sustainability for at least one year with the individuals interviewed taking the lead on sustainability in their school. This included two primary headteachers, one deputy head in a secondary and a range of other teachers with between three and thirty years' teaching experience. The schools were approached through professional contacts working in two organisations: (i) a social enterprise running student-led energy conservation projects in five of the secondary schools; (ii) a local authority supporting the development of Eco-Schools in the remaining settings. Three schools were visited a second time to interview an additional member of staff for verification purposes.

1.3.3 Scope of this research

This is a study of data gathered in a small sample of English schools. The situation in other locations, including elsewhere in the United Kingdom, will be different in several respects; this study does not therefore make any claims on universality although it is hoped that the analysis and reflections on this data will have some relevance, through its contribution to theory-building, to EE/ESD beyond the English school system.

1.4 The research question

This research acknowledges that the implementation of objectives is not a straightforward matter. Rather than simply identifying 'the barriers' to implementing ESD – the oft-repeated response to that question being "time and money" – this thesis explores ways in which attempting to implement ESD programmes actually contradicts expected practice. The title of this thesis (*Are there inherent contradictions in attempting to implement education for sustainable development in schools?*) is an abbreviated version of the core research question:

> *To what extent do teachers recognise contradictions in attempting to implement education for sustainable development in their schools and how do they approach these contradictions?*

In terms of process, the inquiry will:

- conduct a literature review in order to better understand the concepts of sustainable development; education for sustainable development and Activity Theory
- Investigate the different schools' approaches to implementing EE/ESD
- Use Activity Theory as a lens through which to view the organisational system of the school in order to explore relationships among its components and identify inherent contradictions within the system
- Interview teachers and headteachers, using a qualitative semi-structured interview, about their perspective on their schools' approach(es) to EE/ESD
- Analyse the interview data and data from inspection reports and school websites in

order to identify contradictions

- Conduct a dilemma analysis as a means of cross-checking some of the data analysis
- Draw conclusions based on this analysis

1.5 Theoretical background

In looking at the question of contradictions in EE/ESD in formal education, analyses to date have either focused on the theory-practice 'gap' (Stephenson 1987; 2007a&b) or on the personal perspectives and beliefs of individual teachers (Barrett 2007; Cotton 2006). Activity Theory is selected as a methodology for examining activity *within* and *across* systems. The approach explores simultaneously the elements of the activity system and their interaction with each other and with the human subjects in the system.

1.5.1 Activity Theory

Cultural-historical Activity Theory or CHAT (hereinafter called 'Activity Theory') is a theory of social learning used within many disciplines. It originated in the first half of the Twentieth Century with the ideas of Lev Vygotsky and his colleagues (2.3). It has since been developed in the West where Engeström (1987) has developed second and third generation models.

The attraction of this approach is that it explores the culture and practices of subjects within a system (e.g. a school, organisation or shared activity) taking a 'deeply contextual' approach to understanding historically, specific local practices, the object of those practices, the tools or mediating artefacts being used and the nature of social organisation (Engeström 1999). As well as adopting a systemic view, Activity Theory does not deny the presence of the researcher, rather it is interventionist, working through new forms of activity *with* the subjects, not standing aloof from them. These features resonate with this researcher's professional experience leading to his suggestion that Activity Theory and ESD become more closely aligned (Vare 2007).

Despite this apparent resonance, there are few examples of Activity Theory being applied in an ESD context. This research provides an opportunity to (a) become more familiar with Activity Theory and (b) ascertain whether inherent difficulties with the approach prevent its wider use.

1.5.2 ESD 1 and ESD2

This enquiry aims *inter alia* to investigate the extent to which these schools embrace both ESD 1 and ESD 2 (Vare and Scott 2007) – where ESD 1 represents learning that promotes the adoption of 'positive' behaviours and ESD 2 builds learners' capacity to think critically about (and beyond) expert knowledge.

This 'two-sided' concept (*Ibid*) has been has been adopted as the principal means of organising the s3 evaluation tool for the DCSF's National Framework for Sustainable Schools (DfE 2011a) and has been proposed as a way of underpinning the planning of a sustainable school (DCSF 2008) with ESD 1 being characterised as 'sustainable schools supporting national priorities', while ESD 2 is cast as 'sustainable schools as a learning process' (*Ibid*).

The researcher's assumption is that schools conduct ESD 2 in all but name through their regular pedagogic programmes while 'sustainability' is addressed independently of this and largely through an ESD 1 approach.

1.6 Other key concepts

1.6.1 Global crises – wicked problems

There is a growing consensus that we have reached a new epoch, the *Anthropocene* (Brito & Smith 2012), in which human activity is having planetary-scale impacts unprecedented in human history and perhaps in the history of the Earth (Steffen *et al* 2004). In a system characterised by critical thresholds, our activities may inadvertently trigger abrupt changes with catastrophic consequences, indeed some thresholds have already been crossed (*Ibid*).

Environmental crises are exacerbated by socio-economic factors that drive humans to unsustainable practices whether through the unchecked pursuit of riches or a struggle for dignified survival. Levels of inequality are growing among the richer countries (OECD 2008) as well as globally; the incomes of the world's top 1.75% of earners exceed those of the bottom 77% (Milanovic 2011).

These complex problems are poorly understood and pay no respect to geographical or bureaucratic boundaries. They are obdurate or 'wicked problems', a concept borrowed from design and systems planning and applicable to education concepts (Bore and Wright 2009). They demand an inter-disciplinary, multi-faceted response. Recognition of the seriousness of the situation prompted a series of global conferences in the second half of the Twentieth Century that popularised the term *sustainable development*.

1.6.2 Sustainable development (SD)

For Grober (2012) the 'blueprint' for the modern concept of 'sustainability' is the German *nachhaltig*, a 300-year old term from forestry meaning "to hold back reserves for future generations" (*Ibid*: 20). The link between environment and development was made officially at the United Nations Conference on the Human Environment, Stockholm 1972; the term *sustainable development* was "introduced as an environmental policy concept in 1980 … in the World Conservation Strategy" (Rauch 2002: 46). SD was first uttered in the UK Parliament in relation to rainforest conservation (Hansard, 1986). By the time it was re-defined in 'The Brundtland Report' (WCED 1987), the wording had become an uneasy compromise between the economists and environmentalists within this privileged drafting group (Sauvé in Scott & Gough 2003b). The familiar phrase: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (*op. cit.*, Chapter 2, paragraph 1) is followed immediately with a clarification of 'needs' that emphasis global inequality. Thus the definition has 'three pillars' of environmental, economic and social development as well as a futures orientation.

As we move further from the time of the original formulation, far from becoming clearer, the task of defining SD grows more problematic; sustainability has become a *sustainababble* (Worldwatch Institute, 2013). For the purposes of this thesis a clear distinction is not drawn between sustainable development and sustainability. In many schools the terms are used interchangeably, if at all. While it is important to highlight the contested nature of the concept (2.1), this thesis does not challenge the semantics.

1.6.3 Environmental education and ESD

Recognition of the need for an educational response to pressing environmental and social challenges meant that by 1969, "sufficient interest in environmental education as a "new", discrete entity had emerged to occasion the development of definitional statements," (Disinger 1985: 61-62) such as those formalised by IUCN (1970) and at Tbilisi in 1977.

IUCN – The World Conservation Union had defined EE as:

> "A process of recognising values and classifying concepts in order to develop skills and

> attitudes necessary to understand and appreciate the inter-relatedness among man, his (sic) culture and his biophysical surroundings. Environmental Education also entails practice in decision-making and self-formulating of a code of behaviour about issues concerning environmental quality" (IUCN 1970).

This emphasises connectivity and understanding as well as behaviour change. The United Nations Conference on the Human Environment, Stockholm 1972, reflects a more instrumental view recommending EE as a measure "for the understanding, protection and improvement of the environment and its quality" (Sato 2006:1). The Stockholm Conference led to the Inter-governmental Conference on Environmental Education in Tbilisi, Georgia in 1977. The Tbilisi Declaration states that a basic aim of Environmental Education is:

> [...] to succeed in making individuals and communities understand the complex nature of the natural and the built environments resulting from the interaction of their biological, physical, social, economic and cultural aspects, and acquire the knowledge, values, attitudes and practical skills to participate in a responsible and effective way in anticipating and solving environmental problems, and the management of the quality of the environment. (UNESCO-UNEP, 1978)

Once again, the emphasis here is on understanding complex interactions and participation in resolving situations that arise from these relationships. The 'curriculum' of EE clearly goes well beyond knowledge; an important goal is the development of an active citizenry.

Despite this broad scope and ambition, EE has not contributed significantly to mainstream educational policy or practice where the trend has been towards increasing instrumentalism. Smyth (1995) suggests the adjective 'environmental' is a significant barrier, distinguishing EE from other disciplines thereby placing it outside of central educational debates. Over the 1980s, while EE was broadening its scope, so interest was growing in wider development issues, particularly global inequality, giving rise to another 'adjectival education', *development education*. By the late 1990s these 'educations' were being labelled with various permutations of SD, education and sustainability (2.2). The call in Johannesburg in 2002 for a Decade of Education for Sustainable Development (UNESCO 2004) cemented the term 'ESD' internationally.

Despite clear distinctions being made by some authors between environmental education (EE) and education for sustainable development (ESD), there has been considerable elision between these terms for over a decade. It is not the aim of this thesis to resolve this debate so the term *EE/ESD* is used throughout as a short-hand for education that aims to respond to the 'wicked problems' outlined in 1.6.1. As Jickling & Wals (2012) put it,

> "…what is actually done on the ground in terms of teaching and learning is more important than the label under which these activities and actions take place" (*Ibid*: 53).

Without seeking to settle on a single definition, three concepts are highlighted here as being core to the spirit and purpose of EE/ESD.

Action competence

This concept has enjoyed a central role in the Danish education system for decades (Jensen 1995; Jensen and Schnack 1997). It is proposed as a counterweight to the tendency towards individualism in environmental education and is concerned with educational outcomes rather than environmental objectives. Jensen and Schnack also emphasise the importance of democracy with this concept. Having action competence requires the student to have the knowledge, skills, understanding and *motivation* to make a difference and is developed through change-oriented community projects.

Action competence defines an *activity* as something that is designed solely as a counterweight to academic tuition or something that a student is pushed to do. An *action*[1], on the other hand, has the dual characteristic of having a problem solving or change perspective and involving the student in deciding what to do.

For the purposes of this research, the definition of a sustainable school is being kept deliberately open, however Jensen and Schnack are clear about what it is *not*:

> "A school does not become 'green' by conserving energy, collecting batteries or sorting waste. The crucial factor must be what the students learn from participating in such activities, or from deciding something else" (*Ibid*: 165).

Action competence is not part of the lingua franca of education in England although 'action competence attributes' (Lee *pers. comm.*) of self-initiated, citizenly action may emerge as outcomes of EE/ESD activities, whether or not they were planned.

Systems thinking

In recent decades Western thought has begun to rediscover the radically inter-connected nature of our world, particularly in relation to human impacts (Bateson 1972; Capra 1996; Senge 1990; Sterling 2003). Human endeavours, like ecological systems are:

> "..bound up by invisible fabrics of interrelated actions, which often take years to fully play out their effects on each other" (Senge 1990: 7).

However, our habits of thought are slow to change and we appear to be locked into a linear way of thinking, with dire consequences in terms of social, economic and environmental policy. Webster & Johnson (2008) highlight the profoundly unsustainable nature of our linear 'take-make-dump' manufacturing processes, citing Lackoff's work on mental frameworks as a means of grasping the enormity of the re-education task required if society is to switch to a genuinely sustainable path. Bonnett (2002) and Bowers (2002) talk of adjusting our 'frame of mind' and adopting an 'eco-justice pedagogy' respectively. If EE/ESD has a distinctive contribution to offer 'mainstream' education, it must surely be in terms of this fundamental shift in the way we view our place *in* the world (Sterling, 2010b) and in the stories we tell ourselves.

Resilience

In recent years ESD has been coupled with disaster risk reduction, both agendas view education and 'capacity building' as essential strategies towards *resilience* at the community level (UNISDR 2005; UNESCO 2008). The role of education is specifically to enhance our 'adaptive capacity' or our ability to learn and improve with each disturbance.

Sterling (2010a) observes that the concept of the *resilient learner*, as popularised by Guy Claxton (2002), has not featured in EE/ESD discourse yet there are parallels that may give teachers, who are familiar with Claxton's work, an entry point in talking about EE/ESD in their school. While Claxton is concerned with the resilience of the individual, Sterling notes that from a systems view, the resilient learner may be seen as a 'resilient system' (*Ibid*: 517).

1.6.4 Sustainable schools

This term is used throughout this enquiry although it has no standard definition. Attempts have been made to define a sustainable school using various sets of 'level descriptors' to indicate progress from initial interest or pre-awareness to a vision of the most sustainable

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1 In Activity Theory an 'action' is merely a component of the wider *activity*

school (Webster 2004; DfES 2008; Gayford 2009; Scott 2010). For the purpose of this enquiry, the term is used to mean the respondent's own vision of what *they* mean by a 'sustainable school', a topic covered early in each research interview (4.1.1).

1.6.5 Contradictions, problems and dilemmas

Dilemmas appear to be endemic, Berlak & Berlak (1981) identify sixteen generic dilemmas in education divided into 'control', 'curriculum' and 'societal' sets (Appendix I). This research might be seen as an attempt to identify a 'sustainable school set'. Depending on one's chosen definition, the concept of a dilemma can map onto a 'wicked problem'. Bore & Wright recognise 'wicked problems' as phenomena of education that lack clear solutions:

> "What we argue for is a fresh understanding of the underlying nature of problems and issues in education so that more appropriate solutions and techniques can be developed or devised for their resolution" (Bore & Wright 2009: 243).

The term 'resolution' is adopted by Clark (1999) who, in reviewing the dilemmas that beset competing approaches to inclusive education, recognises that some problems might be *re-solved* while they may never be solved. Similarly, Cuban (1992) recognises complex unresolvable problems as dilemmas:

> "Dilemmas, then, involve choices, often moral ones. They end up with good-enough compromises, not neat solutions. We "satisfice" when we cope with dilemmas. That is, in order to satisfy, we must sacrifice" (*Ibid*: 7).

A true dilemma then is a situation where either option (or there may be multiple options) will exact a price or the loss of a valued asset. For Butroyd & Somekh (1999) a dilemma is:

> "characterised by hesitancy, puzzlement, uncertainty, a sense of difficulty or stress, … complexity, tension and contradiction" (*Ibid*: 7).

In categorising dilemmas, Winter (1982) differentiates between:

- *Ambiguities*: Inevitable complexities, not directly linked with any required course of action;
- *Judgements*: Where courses of action are complex and 'interesting'; they are not 'wrong' but require skilful navigation;
- *Problems*: Where the validity of possible courses of action is undermined by the surrounding tensions and ambiguities.

Thus Winter's definition of a 'problem' approximates a true dilemma. Winter's *dilemma analysis* as used in this research (3.2.6) is guided by the sociological conception of 'contradiction', i.e. the idea that all social organisations at all levels are "constellations of conflicts of interest" (*Ibid*: 168) and are therefore continually beset by dilemmas. This underscores the value of Activity Theory, which, as Engeström (1987) reminds us, highlights contradictions that are not only inevitable features but are the driving force for change (3.1.3).

1.6.6 Emergence

While an emergent understanding of knowledge may not be familiar terminology in classrooms, experienced teachers know intuitively that certain conditions will generate novel outputs. Emergent properties are:

- genuinely novel;
- not predictable from a study of the components from which they emerged yet…

- …irreducible to any of those components.

Empirical studies have demonstrated the 'real world' presence of emergent properties, with 'life' and 'mind' often cited as familiar cases (Clayton and Davies 2006). Emergent properties cannot be controlled and measurements cannot be pre-determined, this creates obstacles to the practical (e.g. curriculum planning) level as well as for positivist research:

> "Knowledge is understood, rather, to 'emerge' as we, as human beings, participate in the world. Knowledge, in other words, does not exist except in our participatory actions. …This marks a significant epistemological shift away from representational understandings of knowledge and meaning" (Osberg & Biesta 2008: 313).

This epistemological shift plays a critical role in defining a conceptual framework for this research (3.1.1).

1.6.7 Neoliberalism

This has far-reaching consequences for education *and* environmental concerns. The roots of neoliberalism can be traced back to the Reformation and the liberal doctrine of allowing individuals the freedom to pursue their own self-interest (Berlin 1958) and to the thought of John Locke and later Thomas Paine who called for society's liberalisation from inherited government. The Nineteenth Century saw rapid industrialisation and social change, its negative impacts on the workers drew widespread criticism, most significantly from Marx (Burke 2007) and by the Twentieth Century, the excesses of liberalism were held in check by governments. Post-Second World War social policies sought consensus between state, capital and labour while Keynesian economics sought to avoid the earlier recessions (and depressions) of the business cycle. For Harvey (2005) the ideas that broke this 'post-war consensus' were hatched by a cabal of financiers and power brokers meeting in Switzerland after the War. They held minority political and ideological positions; for Harvey, the 'success' of the Reagan and Thatcher governments of the 1980s was to take these minority views and make them mainstream with lasting impacts:

> "The alliance of forces they helped consolidate … became a legacy that a subsequent generation of political leaders found hard to dislodge" (*Ibid*: 62).

In Harvey's Marxist analysis this is "all about the maintenance, reconstitution, and restoration of elite class power" (*Ibid*: 188). Lazaratto's (2009) more detached view does not offer much relief; he adds 'financialisation' to Foucault's list of: individualisation; inequality; insecurity; depoliticization. Each of these aspects of neoliberalism has implications for education. Of *individualisation*, Lazzarato claims:

> "These conditions include the formation of a new type of individual, the subject who is an 'entrepreneur of him/herself' who is meant to fit into the frame of society remade as an 'enterprise society'" (*Ibid*: 110).

Inequality is a necessary condition for the competition that neoliberalism insists upon; this in turn drives processes of ranking, comparison and performance measurement linked to reward, esteem and survival. High stakes inspections, comparisons with Finland or China and the imposition of performance-related pay are manifestations of this that teachers may recognize today.

These multiple measurements heighten our sense of *insecurity* so that we become self-governing though "a micro-politics of little fears" (*Ibid*: 120). Yet we cannot change what has become 'common sense'. Through *depoliticization* neoliberalism replaces debate and deliberation with 'choice'. Collective conditions of experience are rendered into personal

problems so that at the societal level, stability is achieved. *Financialisation* links with insecurity, so that we calculate ourselves in relation to an uncertain future, thus through individualisation we perceive ourselves as 'human capital'. Personal and professional development becomes an 'investment decision' – including the taking of professional doctorates!

In reviewing the impacts of this 'culture of performity' on teachers, Ball and Olmedo (2013) cite 'Martin' who critiques the notion of 'college/career readiness' for students. While not rejecting the idea he recognises how this "leaves something out of schooling" (*Ibid*: 89).

For Lazzarato the state becomes simply an apparatus for capital, working in myriad, inter-connected ways:

> "…the all-inclusive category of ideology insufficiently expresses the complex relationship between discursive practices and relations of power" (*Ibid*: 113).

While it may not be for education to change the world, it is clearly playing a role among many other structures in creating the conditions for neoliberalism. The very structures in which education takes place, e.g. academies and free schools, facilitate the withdrawal of the state in favour of civil society and private enterprise.

In terms of sustainable development, this is not a neutral story of school management; neoliberalism impacts the bio-physical environment. Harvey (2005) identifies the following:

- An insistence upon privatization that makes it hard to establish any global agreements e.g. on forest management, particularly in the tropical rain forests
- Market failure – externalising liabilities such as dumping noxious wastes free of charge in the environment
- A 'fetishistic' belief that there is a technological fix for each and every problem
- Coercive powers of competition to drive the search for new products and organizational forms
- Short-term contractual relations putting pressure on producers to extract everything they can while the contract lasts.

For Ball & Olmedo (2013) the battleground is not a public rally but *ourselves* as contested subjects. We overcome the seeming inevitability of neoliberalism not by group resistance but by the individual taking care of one's *self*. They claim that by acting 'irresponsibly', teachers take 'responsibility' for changing this 'social reality.'

1.7 Outline of Thesis

After this introductory chapter, the thesis proceeds as follows:

Chapter Two
The literature review, covering three themes:

- *sustainable development:* pointing out conceptual pitfalls with this contested concept
- *EE/ESD:* outlining different conceptions of this comparing it to Biesta's (2009) concept of 'good education'
- *Activity Theory*: introducing the generations of the theory and highlighting its use in EE/ESD

Chapter Three
The discussion on methodology opens with an explanation of how this thesis is underpinned by a realist ontology but interpretative epistemology. It introduces relevant aspects of Activity Theory before describing the research process and methods. Strategies for building 'trustworthiness' in the research are followed by a review of ethical considerations.

Chapter Four
This chapter presents the analysis and initial findings of the research including *inter alia* the dilemmas and contradictions identified in the data.

Chapter Five
The findings are synthesised with the literature to suggest practical and policy implications. The use Activity Theory is also reviewed and contributions to theory are proposed.

Chapter Six
The thesis closes with reflections on the enquiry and possibilities for further research.

Chapter Two: Literature Review

Introduction

This review begins with the theme of sustainable development *per se* because the contested nature of this concept underpins, often invisibly, some of the difficulties faced in the promotion of EE/ESD. After exploring some of the of characteristics of sustainable development the chapter provides a historical perspective of EE/ESD policy in England followed by a review of conceptions of EE/ESD. Literature on rhetoric-reality gaps in EE/ESD points to Activity Theory as a promising methodological approach for this enquiry. The chapter ends with a review of Activity Theory and its possible relevance to research in EE/ESD.

2.1 Sustainable development: blind spots and pitfalls

It is widely recognised that Sustainable Development (SD) is a learning process (Hamm and Muttagi, 1998; Sterling 2001; Vare & Scott 2007; Foster 2008) and its inherent contradictions are seen by some as prerequisites rather than barriers to learning (Jickling & Wals 2008). In identifying tensions within SD, we may therefore highlight learning opportunities or at least implications for those who aspire to create a 'sustainable school'. This section highlights seven difficulties with popular notions of SD. These are characterised as 'blind spots' or aspects that are often overlooked, and inherent 'pitfalls' in the concept.

2.1.1 Blind spot 1: Anthropocentricism

The WCED (1987) definition sees the 'limitations imposed by technology' as a key determinant of the environment's ability 'to meet present and future needs.' In seeking a more robust definition, some have focused on the environment's regenerative capacity:

> "To be sustainable an action must not lead, or contribute, to depletion of a finite resource or use of a resource exceeding its regeneration rate" (CIWEM 2013).

For those who reject such an instrumental view of the environment (Bonnett 2002, 2007; Bowers, 2002), this language of 'resources' is a core problem:

> "Acting extensively out of pragmatic self-interest embodies a stymieing ignorance that brings a spiritual impoverishment, that in turn diminishes our sense of ourselves and what it is to live well" (Bonnett 2007: 711).

For Heidegger, this not only diminishes us, it undermines our very existence; he sees our destruction of nature as a direct result of Western technological understanding that treats all things as resources for human ends (James 2002).

The implication for education is that rather than teaching a set of behaviours, it should contribute to a re-calibration of consciousness. Bonnett (*op. cit.*) sees sustainability as a 'frame of mind' that seeks a 'right relationship' with nature. Bowers (2002) calls for an 'eco-pedagogy' that takes ecology as its 'root metaphor' to guide our thinking rather than the mechanistic, linear thinking that we have inherited through a shared history and experience of the Industrial Revolution. James prefers Heidegger's term, 'releasement' to describe an attentiveness towards things. Against such language of deep connection and appreciation, SD definitions above read like technical manuals (2.2.5).

O'Riordan (1989) presents a spectrum of views across two categories: eco- and techno-centric (Table 2.1); this suggests that those who hold an *ecocentric* view constitute a tiny minority. O'Riordan's interpretation of this leaves no doubt as to where his analysis is leading:

> "Development that does not destabilize environmental gyroscopes cannot produce real improvements in standard of living for a growing population without massive redistribution of wealth and power" (O'Riordan 1989 p. 93).

This 'red-green' version of SD informs the economic arguments below.

Ecocentrism		**Technocentrism**	
Gaianism	*Communalism*	*Accommodation*	*Intervention*
Faith in the rights of nature and of the essential need for co-evolution of human and natural ethics.	Radical and reformist. Faith in co-operative capabilities of societies to establish self-reliant communities based on renewable resource use.	Retains the status quo but accepts concessions. Faith in institutions and their ability to accommodate environmental demands.	A limitless belief in the capacity of people to exploit the earth. Faith in science and market forces.
0.1 – 3% of various opinion surveys	*5 – 10% of various opinion surveys*	*55 – 70% of various opinion surveys*	*10 – 35% of various opinion surveys*

Table 2.1: European perspectives on environmental politics (after O'Riordan 1989)

2.1.2 Blind spot 2: The economic pillar

For Huckle (1999), the language of SD is masking the root problem – unbridled capitalism:

> "…the political debate surrounding sustainability is part of a larger debate focussing on what mode of regulation will allow capitalism to survive in a viable form" (*Ibid*: 36).

Focusing on the ecological sphere appears to miss the point; Huckle demands that we start with the global economic crisis from which environmental concerns are inseparable. Alternatively, Foster (2008) proposes a full engagement with the capitalist hegemony, not through a sense of pragmatism but because it actually shares important features with sustainability. Both demand space for flexibility, innovation and an increase rather than diminution of options for the future, i.e. they are both essentially learning processes.

Better then to pinpoint attributes of capitalism that are particularly dangerous; the New Economics Foundation (Simms 2009) identifies three:

- Government spending plans that assume 'growth'
- A legal obligation on publicly listed companies to maximise profit to shareholders
- The creation and lending of money by banks that demand repayment with interest.

These three features place an imperative on the economy to grow while limiting the potential of any wealth to improve social and environmental conditions. Add to these the list provided by Harvey (2005) (1.6.7) and we see a pattern of structures designed to perpetuate our unsustainable trajectory. A review of Hansard over the period 1997-2005 (Appendix IV), shows that the word 'sustainable' is used most frequently in parliamentary debate in relation to the 'sustainable growth' of the economy. Ultimately, the concept of sustainable growth defies the Second Law of Thermodynamics so it seems imperative that this issue be resolved. For Chris Huetten, Chief Executive of the multinational SAP, the problem is a lack of experience in sustainability reporting:

> "You can't expect these people to do that if they don't have a more than 500-year history, like financial accounting has" (Roston 2013).

The question of economic growth is side-stepped; this is simply a matter of raising non-financial reporting to the standard of financial reporting. Alternatively, Wilson (2012), differentiates between *development* and *growth*. Public spending on improved education, healthcare and housing are seen as examples of development; for Wilson, sustainable development is not an oxymoron; 'sustainable growth' is (*Ibid*).

A more radical proposal is that of 'degrowth' (Kallis *et al*.: 175) although proponents recognise that metrics have yet to be developed for this. The extent to which economics is overlooked by ESD in schools is a serious concern. As Scott puts it, "if education actually did set out to explore the inter-relatedness of social justice and ecological integrity through economics, then we might be getting somewhere" (cited in Webster & Vare 2012: 408).

2.1.3 Blind spot 3: The culture deficit

It has been argued that Brundtland's three pillars of SD do not reflect culture, which some argue should be the 'fourth pillar' (Nurse 2006; UCLG 2010). This 'culture deficit' overlooks our most life-affirming dimension (CIWEM 2013). It also fails to recognise the enormity of the task of cultural change that may be required to achieve sustainability or indeed, whether we wish to achieve sustainability *at any cost*. Indeed, this may not be a struggle between those who wish to survive and those who do not but rather, as Bateson (1970) puts it, between those who see survival in terms of 'bioenergetics' and those who wish to perpetuate the 'economics of information' (or culture). For Bateson our survival is broader than our own bodies, something 'bounded by the skin,' he perceives it as survival of a system of ideas.

As an example of this, Gough and Scott (2007) recount the fate of the Greenland Norse who died out in the Fifteenth Century as a result of climate cooling and unsustainable practices. Had they chosen to learn from, rather than fight, the indigenous Inuit, their demise may have been averted. However, adopting the lifestyles of the Inuit would have represented the demise of the Greenland Norse culturally.

From an education perspective, even Harvey's concept of PERE – Person-Environment Relationship Education, (cited in Vare & Scott, forthcoming), which seems to capture what many understand by environmental education, does not mention culture. This may be because 'our' culture is not taught but is transmitted subliminally. For schools this magnifies the importance of defining their own culture or ethos, which will play out in pedagogic practice.

2.1.4 Pitfall 1: The 'future' orientation

The concept of SD suggests a pact with unborn generations. As they are not present, we are their agents but we are fallible human beings and like a corruptible lawyer with the power of attorney, we are sorely tempted to spend the wealth entrusted to us (Foster 2008). Thus we impose targets to the extent that nobody feels particularly rationed:

> "…the whole process of policy creep and personal accommodation, from top to bottom, is really one of doing just enough to avoid confronting the recognition that nothing like enough is being done" (*Ibid*: 131).

In the context of climate damage across generational boundaries, Davidson (2012) argues for the application of the norms of international laws that handle pollution across national borders. Because the climate is an un-owned service that affects everything, damaging it would not only impoverish future citizens, it would damage their right to benefit from the fruits of their own labour and this in law is a 'wrongful harm'. He cites alternative

perspectives, such as distributive justice, that would deprive the current generation in favour of their wealthier successors. Assuming future *per capita* income will be above present values, we may see current privation as a "Robin Hood activity stood on his head – it takes from the poor to give to the rich" (*Ibid:* 107).

Perhaps the most significant limitation is the epistemological concern raised by Bonnett (2002): given our imperfect knowledge of the complexity of the Earth System, we may find it impossible to judge which actions will positively contribute to sustainable development. Even if the ends of any action are agreed, we may not know whether the means will be detrimental in the long term. This takes a leap of imagination in order to take practical steps in favour of future generations, particularly because the timescale is so ill-defined. Thus Foster (*op. cit.*) compares SD to a mirage; we fool ourselves that we are moving towards it when in fact we may be squandering our opportunities to arrive at a 'humanly-habitable long-term situation.' (*Ibid*: xvii). The extent to which schools, with high stakes inspections, currently find space to cultivate imagination of this kind is something that may emerge through this research.

2.1.5 Pitfall 2: Language

SD was ill-defined at the outset and has since become so afflicted by the (mis-)use of language, deliberately or otherwise, that some writers eschew the term altogether (Bowers 2002; EMF 2012). As discussed above, alternative concepts such as eco-pedagogy and releasement are suggested but even these are not immune to language games. 'Going with the grain of nature', in the Heideggerian sense, is a phrase popularised by the Prince of Wales yet even this phrase proves malleable in Prime Minister Tony Blair's forward to the National SD Strategy:

> "We will only succeed if we go with the grain of what individuals and businesses want, and channel their creativity to confront the environmental challenges we face" (HM Government 2005).

Responding to human nature is one thing but specifying 'individuals and businesses' belies a neoliberal agenda, even if unwittingly so.

A review of the Parliamentary record, Hansard (Appendix IV) shows SD being used in the 1980s in relation to international aid before migrating to trade agreements. *Sustainability* and *SD* are used with increasing frequency after New Labour comes to power. *Sustainable development* is an example of a `paradoxical compound policy slogan' (Stables, 1996) constructed by policy makers in an attempt to appeal to a wide range of interests. This however allows others "to interpret the policy in ways which may run against the interests of the policy makers" (*Ibid:* 159). Little wonder that in 1999 one MP complains:

> "Sustainability is a new buzzword, often twisted to suit the argument of whoever is using it at the time" (Peter Luff MP, Hansard, 20th July 1999).

Rather than simply rejecting the term we might define and defend it, understanding that our definition is one of many possibilities. At the school level this can become an exercise in logical thought if not an appreciation of the role of language itself, which as Nietzsche (1873) insists, consists merely of:

> "…metaphors which correspond in no way to the original entities" (*Ibid*: 3).

Just as concepts are subject to interpretation, so SD can subvert language and thought, most seriously perhaps in underplaying the fundamental importance of ecology by equating it with the social and economic spheres (Bowers 2002). The very discussion of 'nature' can appear under threat from technicist definitions of SD:

> "The contemporary highly instrumental stance within Western society at large necessarily diverts attention from issues concerning the meaning of nature by simply ignoring them or by making them sound 'purely academic', esoteric, even frothy" (Bonnett 2007: 709).

In seeking freedom of thought we might turn to emancipatory education (Freire 1968) but Bowers (2002) argues that even critical pedagogy is insufficient to address our ecological crisis because it springs from the same root metaphors of industrialisation and linear progress as neoliberalism. In seeking to identify contradictions in sustainable schools, this enquiry may need to seek clues within teachers' use of language.

2.1.6 Pitfall 3: Framing the concept

Many of the difficulties outlined above stem from SD's weak epistemological underpinnings. It is at once a global imperative (UNEP 1992) and an individual responsibility (as exemplified by the UK Government's 'Are you doing your bit?' campaign). It is about relieving the poor *and* maintaining current levels of well-being (WCED 1987); it promotes technical solutions reflecting reductionist science while requiring systemic thinking (Sterling 2001).

Webster and Johnson (2008) and Bowers (2002) draw on the work of George Lackoff who emphasises the importance of the frameworks we use; for Lackoff there is no meaningful learning without its framework or context. The way we frame SD will have a direct consequence for what we count as appropriate action, including the role of education (or not). Frameworks for SD have been visualised in a number of ways (Figs 2.1-2.4).

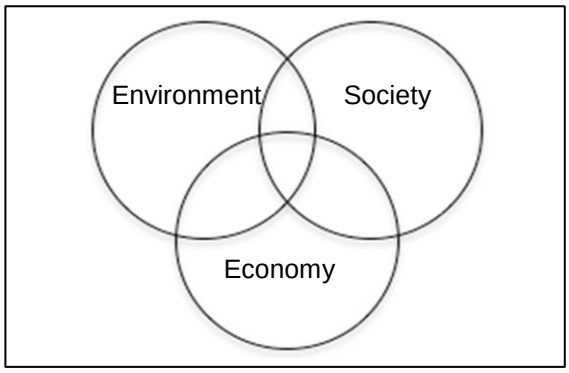

Fig. 2.1: Interlocking spheres

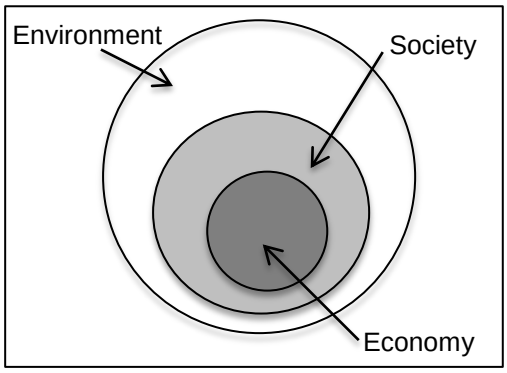

Fig. 2.2: Nested systems

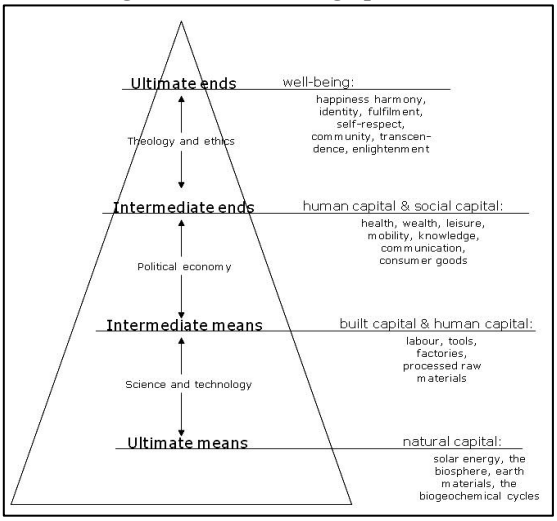

Fig. 2.3: Daly's triangle (Scott 2010)

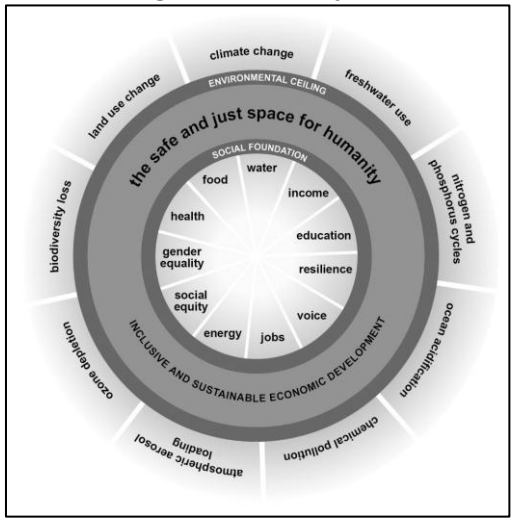

Fig. 2.4:Oxfam's doughnut (Raworth 2013)

The interlocking spheres model (Fig 2.1) best exemplifies the WCED approach; it suggests compromise; all three sectors are held in balance with SD located at their intersection. Sterling (2001, 2003) emphasises the primacy of the environment as the context in which human activity is located, this is expressed by the nested systems (Fig 2.2). This also recognises the central place of the economy among many stakeholders while not losing sight of social imperatives and the ultimate limitations imposed by the environment.

The economist, Herman Daly, proposes different 'capitals'; language since adopted by *The Natural Step* in Sweden and *Forum for the* Future in England. The list of components on the right hand side of Daly's model (Fig 2.3) suggest possible indicators as one passes from the building blocks of natural capital through the mediating artefacts of built and social capital up to the ultimate end of human well-being. One could simplify the model by having the three spheres, environment, economy and society ascending the triangle. Scott (2010) links this model to four attributes of a sustainable school suggested for the Specialist Schools and Academies Trust (Scott 2008).

Raworth's model (Fig 2.4) helps to visualise human activity as *available space* between an environmental ceiling and a socially acceptable floor whose components are arranged in a circular form or 'doughnut'. The social aspects reflect Oxfam's concerns thus highlighting the socially constructed nature of the 'floor'. Conversely, the environmental ceiling will have absolute values, albeit currently unknown. Defining this doughnut will demand negotiation at one level and scientific observation at the other, all of which has implications for education. In describing the fragmented policy-making that characterises the different spheres of sustainable development, Scott and Gough (2003a) talk of "disconnected lumps of joined up thinking" (*Ibid*: 22). Part of the problem is that different spheres of SD draw on different root metaphors. In order to embrace the diversity inherent in sustainability issues, many writers see a central role for systemic thinking (Bateson 1970; Senge 1990; Capra, 1996; Sterling 2001; Bonnett 2002).

As well as understanding systems themselves, in real-world contexts this will require inter- (between), multi- (among several) and trans- (overarching/holistic) disciplinary ways of working. The researcher's experience in conservation and with extractive industry has involved all of these combinations with different frameworks and concepts in play among the various sectors involved (Vare 2007). This work involves 'boundary crossing' across disciplines; not a straightforward task. Meadows (2008) reminds us that reductionist thinking remains vital as there is a need for discipline-based expertise. Yet highly-credentialed experts may lack the skills or inclination to engage with a broad range of 'stakeholders' including perceived non-experts.

Fig 2.5 illustrates the way in which different forms of expertise may be linked in addressing a multi-faceted SD issue. Even the isolated 'expert' to the right of the diagram is brought into the trans-disciplinary process through pro-active boundary crossing by a facilitator. Discipline-based expertise reflects the way in which subject specialisms dominate arrangements within formal education; thus a focus on inter-connectivity could have far-reaching implications for an aspiring 'sustainable school'.

The 'trans-disciplinary worker' in the diagram has a facilitative role rather than that of technical 'sustainability expert'. Such roles can be found in large corporations that seek to link the expertise found across a company or even a higher education institution. This may extend to communication with wider society. While this could be a useful co-ordinating role in a sustainable school, the more familiar pattern is that of a 'sustainability champion' attempting to lead change rather than acting through colleagues.

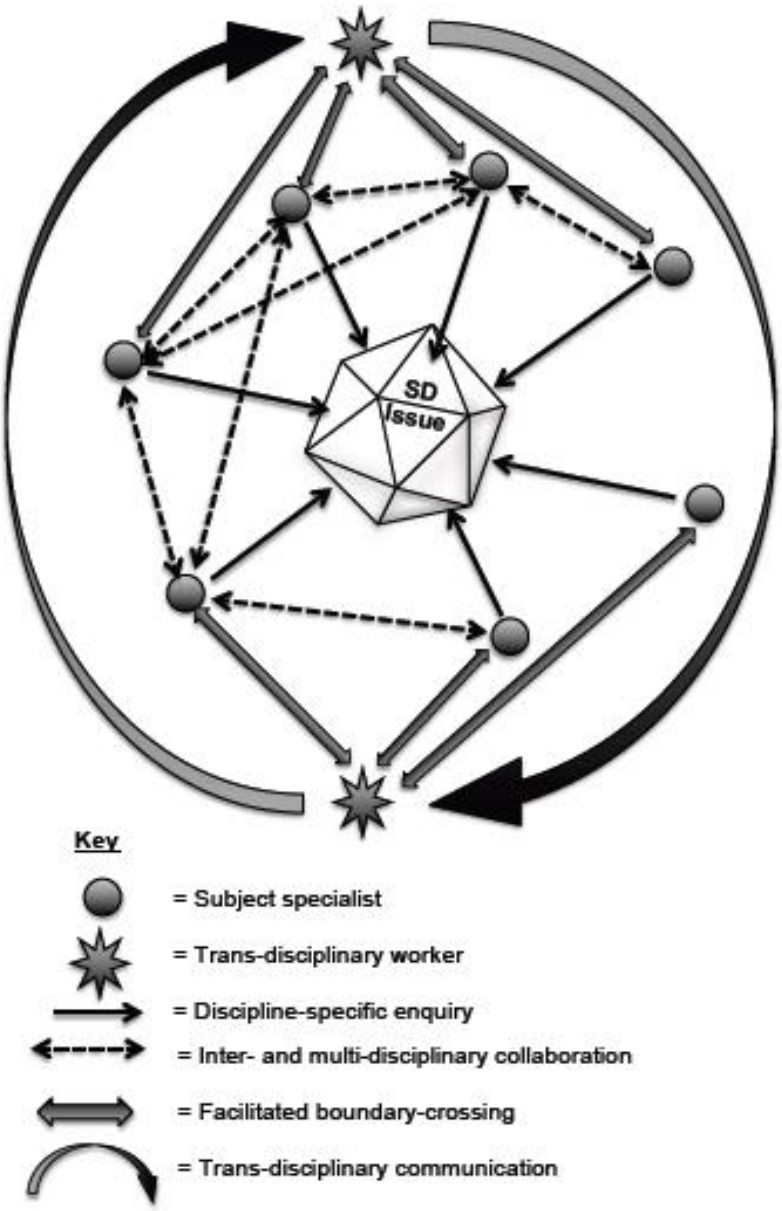

Fig. 2.5: Inter-, multi- and trans-disciplinary working in sustainable development

2.1.7 Pitfall 4: The demand for fresh thinking: autopoiesis and co-evolution

An important aspect of systems is their autopoietic quality, i.e. they are self-producing in that feedback within the system causes change in its conditions, which in turn creates feedback. As autopoietic systems are simultaneously producers and products, Mariotti (undated) suggests that they work in a 'productive circularity' and to combine this with linear thinking demands *complex thinking*. Similarly, Norgaard's concept of co-evolution (Scott & Gough 2003c) allows for linkages between economic and ecological ways of thinking. As Bateson (1979) states, for change to be sustained it must take into account both an organism's internal demands and the environment's external requirements if it is to withstand the system's tendency to replicate itself. To achieve this Bateson claims that the system must 'relax' to allow inner contradictions to take hold and affect the self-recursivity of the system.

All this presents schools with a serious challenge, as Blewitt reminds us:

> The problem with sustainability is that it requires meaning schemes and perspectives that are at once holistic, multi-vocal and pragmatic, and we are not there yet. At present we just don't think like that, but then what is the point of education?
>
> (Vare & Blewitt 2009:4)

Education may indeed assist the next generation in recognising and combining conceptual frameworks; however, this has not been its central role hitherto. As Schumacher puts it, "If still more education is to save us, it would have to be education of a different kind…" (Sterling 2001:21). The extent to which EE/ESD may or may not provide alternative perspectives is an issue to which this review now turns.

2.2 Education and sustainable development in England

2.2.1 Some (pre-)historic milestones

For our hunter-gatherer ancestors all learning was probably environmental; success was measured by survival (Smyth 1995). For children, most learning took place through 'play', although work and play were not distinct categories (Gray, 2013). This is supported by recent accounts of indigenous learning (Mbiti 1967; Burch 2006; Oomittuk *pers. comm.*) that also suggest pre-Christian beliefs were deeply rooted in local environments underscoring an inter-connected view of the world that included humans *in* the cycles of life.

In the case of Western civilization, the displacement of paganism by Christianity triggered perhaps "the greatest psychic revolution in the history of our culture" (White 1967: 1205) positioning humans *above* nature and giving us an "implicit faith in perpetual progress" (*Ibid*). In England, Augustine and his Christian missionaries established the first recorded schools late in the sixth Century to develop a cadre of Latin-speaking native priests (Gillard 2011). The link between sponsor, religion and an instrumental view of education has persisted over the intervening centuries.

Other features to emerge in Gillard's (*Ibid*) history of education include:

- School systems reflecting England's class structure
- Academic curricula adapting belatedly, if at all, to changing economic conditions
- Innovation designed to suppress the cost of education.

Add to this a draconian discipline regime and it is hard to conceive of a system further removed from the aboriginal learning processes that had sustained humanity for millennia.

2.2.2 Mass education takes shape

The demands for a trained workforce created by the Industrial Revolution led to mass education, initially developed through Sunday schools, schools of industry and the 'monitorial system'. The latter was engineered to allow one master to teach hundreds of children with the help of minimally qualified assistants.

The 1870 Elementary Education Act heralded the start of a thirty-year process of legislation that brought about universal, free, compulsory education up to the age of eleven with registered teachers and a system of school inspection. Early elementary training was reduced to prescribed outcomes to facilitate a *payment by results* system. This ended by the Twentieth Century, indeed the Haddow Committee report, *The Primary School*, sought explicitly to humanise elementary education calling for the curriculum to be:

> "[…] thought of in terms of activity and experience, rather than knowledge to be

acquired and facts to be stored" (Haddow Report 1931 in Lawton 1996).

Universal secondary education to 'serve the child's spiritual, moral and intellectual well-being' arrived with the 1944 Education Act.

As austerity gave way to increasing self-confidence and the desire for greater individual freedom, the Plowden Report, *Children and their Primary Schools* (DES 1967) gave progressive education "its most iconic official document" (Glatter 2012: 561). Among its recommendations, the report emphasised individual learning, a flexible curriculum, the use of the environment, learning by discovery and the importance of evaluating children's progress.

By this time the publication of Rachel Carson's *Silent Spring* in 1962 had heightened awareness of the impacts of industrial society and concern grew with publications such as *The Population Bomb* (Erlich 1968) and *The Limits to Growth* (Meadows *et al* 1972). Recognition of the need for an educational response to these challenges prompted the emergence of a defined environmental education (IUCN 1970; Disinger 1985). Rural studies and agricultural education were already widespread in secondary schools and in 1968 the term 'environmental education' (EE) appeared for the first time in the parliamentary record (Hansard 1968). Despite this apparent convergence between popular concern, progressive education policy and EE, a strong counter-view was emerging. The first of the 'Black Papers' (Cox & Dyson 1969) attacked progressive teaching methods and "sanctified the language of educational 'standards' that became conventional usage … from the 1990s onwards" (Glatter 2012: 560).

Against a backdrop of economic stagnation, Prime Minister Jim Callaghan's 'Great Debate' on education in 1976 invited the participation of employers, trades unions and parents. Expanding the dialogue in this way heralded a shift in approach that accelerated when Margret Thatcher's Conservatives came to power in 1979.

The second Education Act of 1986 redistributed powers from local education authorities (LEAs) to central Government and schools. It included an explicit ban on 'political indoctrination' forbidding "the pursuit of partisan political activities… and ... the promotion of partisan political views" (HM Government 1986: para. 44(1)).

The Education Reform Act 1988 ushered in England (and Wales') first National Curriculum. Representing a severe form of curriculum-as-content (Kelly 2009). A former Conservative Education Minister, Sir Keith Joseph, attacked these proposals for running counter to the Government's purpose:

> "Their philosophy is that we have been over-governed, and that in many fields the Government should provide a framework and leave people in their infinite variety to pursue their own purposes within that framework. Yet here, in the national curriculum, we have over-government and, in my view, straitjacket government" (Keith Joseph in Hansard 1988a).

There is however, a neoliberal logic to this. While privatisation of nationalised industries proved straightforward for Thatcher's Conservatives, dismantling the welfare state in the face of public opposition proved more difficult. The National Curriculum can be seen as an essential step in commodifying education. It facilitated the development of nationally standardised tests that could in turn provide simplistic league tables of schools – information parents require to 'consume' in an education market place.

This reflects an increasingly hegemonic neoliberal philosophy that has come to dominate global policy discourse (Harvey 2005). In the midst of this process the World Commission on Environment and Development defined *sustainable development* (WCED 1987) in an effort to 'square the circle' of expanding economic development for all without transgressing

environmental limits.

2.2.3 EE/ESD in national education policy

The 1988 National Curriculum brought to an end decades of professional freedom; teachers and schools were now accountable to a technocratic centre on curriculum matters. For EE/ESD to become a part of school life, it would have to fight its corner within an increasingly politicised system. Lobbying from within (Hansard 1988b[2]) and outside Parliament resulted in EE becoming one of five cross-curricular themes to be covered by official curriculum guidance (NCC 1990) that echoed the Tbilisi objectives (1.6.3). However, "the document itself was perceived as being redundant by many schools" (Palmer 1998:25).

In answering a question on teaching about sustainable development (Hansard 1992) Eric Forth MP replied that it was covered in the 'orders' for Geography. The following year, the Government accepted the recommendations of the *Dearing Review* (SCAA 1994), which included the removal of Geography as a mandatory subject from an overloaded curriculum while subsequent Secretaries of State "discouraged any further discussion of cross-curricular work" (Lawton 1996:35). Through a perhaps unintentional pincer movement, EE and 'sustainable development' were removed from the compulsory curriculum.

Between 1993 and 1997 seven education acts were passed. This 'policy hysteria' of ever-shorter reform cycles and multiple innovation (Stronach & Morris 1994) has characterised education reform up to the present. The Hansard record includes repeated questions to ministers on EE to which the response is that EE is a matter for schools, institutions or authorities themselves (Appendix IV).

The New Labour Government declared its support for 'environment and development education' (Hansard 1997a) and established the inter-departmental Sustainable Development Education Panel (SDEP 1998) with a five-year remit. The first SDEP output, the Holland Report, linked education outcomes to seven *sustainable development* principles. While this suggested coherence between ESD and SD, its failure to define ESD in terms of *educational* principles or structures obstructed integration into mainstream education (Vare & Scott, Forthcoming).

Active citizenship, a key tenet of environmental education, was the subject of the influential Crick Report (QCA 1998) that called for pupils to learn:

- self-confidence and socially and morally responsible behaviour
- to become involved in the life and concerns of their communities
- how to make themselves effective in public life through knowledge, skills and values.

The report refers to environmental and sustainable development as one of many strands that provides "important contexts and content to support the aim and purpose of citizenship education in schools" (*Ibid*: 41). This combination of neoliberal reforms with the communitarian language of sustainable development and citizenship was indicative of New Labour's wider political discourse, the 'Third Way' (Giddens 1998), that sought to avoid labels of left or right but focus on 'what works' (David 2007).

The term 'sustainable development' appeared for the first time in the National Curriculum for England and Wales, principally through Geography, Science and Citizenship (QCA 1999). An analysis of this first appearance (Chiatzifitou, 2002) notes how:

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[2] A review of the Parliamentary record Hansard (searching for *environmental education*, *sustainable development* and *education/SD*) provided a flavour of the policy discourse in this area up to the start of the UN Decade for ESD (Appendix IV).

> "…subjects that deal with tangible knowledge like mathematics … have a priority over subjects that deal with general or abstract notions like responsibility, justice or commitment to sustainable development" (*Ibid*: 291).

With the promise of a revised National Curriculum in 2000 came the prospect that some schools would no longer have to follow it. New 'city academies' were to be funded directly from central Government; they were to be independent of local authority control and free to develop their own curricula.

In 2003 the renamed Department for Education and Skills published its Sustainable Development Action Plan (SDAP), the first of its four objectives being *education for sustainable development*. (DfES cited in EAC 2004). In the foreword, the then Secretary of State for Education, Charles Clarke MP, said:

> "We need to embrace sustainable development across the education system so that best practice becomes common practice. Not as a bureaucratic add-on but as an integral part of the skills development of this country" (*Ibid*).

While the educational remit was broadening, Defra published a new UK sustainable development strategy *Securing the Future* (HM Government 2005). This included a chapter on education and featured this pronouncement from the Prime Minister:

> "Sustainable development will not just be a subject in the classroom: it will be in its bricks and mortar and the way the school uses and even generates its own power. Our students won't just be told about sustainable development, they will see and work within it: a living, learning place in which to explore what a sustainable lifestyle means" (Tony Blair, *Ibid*: 37).

The schools inspection service, Ofsted, captured the zeitgeist with a survey of ESD practice in schools that led to the publication of a report (Ofsted 2003) that fed into more comprehensive guidance (Ofsted 2010) for schools inspectors.

Policy makers and EE/ESD activists alike were cognisant of the forthcoming UN Decade for ESD, 2005-14 (UNESCO 2004) while the United Nations Economic Commission for Europe was drafting an ESD Strategy (UNECE 2005) with the involvement of a DfES civil servant on the 'Expert Drafting Group'. As a member of this group, this researcher was struck by the proscribed nature of UK Government engagement. While discussions were often heated, the DfES staffer simply read prepared statements designed to reign in idealistic tendencies while reminding the group to keep recommendations practical for implementation. Subsequent investigations found that the UNECE Strategy was principally of value to the UK Government as a source of guidance for its assistance to the 'transition states' of the former Soviet Union (Vare *et. al.* 2004).

After Labour's third electoral victory in 2005, schools were further encouraged to become independent of local authority control, whether as trust schools or academies. Despite the rhetoric of sustainable development and citizenship education, David (2007) notes that educational debate since the 1990s has been:

> "…preoccupied with 'what works' with respect to 'raising standards' … The overarching concern has been about examination grades in secondary schools and the academic attainment of young people – the achievement agenda" (*Ibid*: 431).

The 'what works' approach was evident in England's *National Framework for Sustainable Schools* (NFSS - Teachernet 2008a) launched in 2006 by the (again re-named) Department for

Children, Schools and Families (DCSF). This voluntary framework comprised three interlocking parts: (a) a commitment to care; (b) an integrated approach linking campus, curriculum and community; (c) eight 'doorways' or thematic entry points.

The commitment to care has been criticised by Webster for its failure to clarify sustainability:

> "That was a masterpiece of framing which made it impossible to resist (who is against caring?) and militated against getting usable boundaries on sustainability apart from the sense that it was probably down to individuals and communities to act appropriately to express 'caring' … ESD as a way of offering a critique was 'cared to death'. Critiques don't sound very caring after all" (Webster & Vare 2012).

While the second part promoted integrative thinking, the doorways proved problematic:

> "… there are risks inherent in a doorways approach; for example, presenting sustainability as a series of fragmented and unrelated ideas in what is a rather conservative and limited approach to the issues we face" (CREE 2009:10).

Furthermore, the doorways omitted biodiversity, a crucial ESD component in terms of ecological understanding and pedagogical practice that promotes first-hand experiences of nature. Despite these concerns, the Framework did help schools to rationalise and build upon their existing efforts and importantly helped to provide a system of monitoring with the publication of the Sustainable Schools Self-evaluation tool (S3) (Teachernet 2008b).

From an ESD 1 perspective much ground was gained, however there lacked any coherent (ESD 2) approach to expanding learners' critique of society. As David observes:

> "Policy developments sustain traditional political values rather than empowering children and young people" (David 2007: 425).

Following the 2010 General Election the new Coalition Government's antipathy towards ESD was demonstrated by the withdrawal of new inspection guidelines (Ofsted 2010) that highlighted ways for schools to address sustainable development. The target of all schools becoming 'sustainable schools' by 2020 was dropped and the NFSS website was closed.

At the time of writing, school activity on sustainability no longer enjoys Government support although its value in providing "contexts and content" (QCA 1998) appears to be widely recognised. The international Eco-Schools programme managed in the UK by the Tidy Britain Group continues to appeal to many schools while local and national issue-based NGOs continue to support schools that choose to adopt their programmes.

The ESD community appears to be in an uneasy standoff, waiting in the wings in the hope that the general election, scheduled for 2015, brings a fresh approach (Finlayson *pers. comm.*).

2.2.4 Diversity or incoherence?

The history of environmental education (EE) and education for sustainable development (ESD) has been recounted in a number of publications (Sato 2010; Munroe 2012) including by this researcher (Vare and Scott 2013). Fig 2.6 provides a timeline of significant milestones in the development of ESD in the UK and internationally.

The antecedents of ESD can be traced from rural and urban studies, through environmental education with development education (*Ibid*) although the relationship between education and sustainable development *per se* remains uncertain. Scott and Gough (2003c) shed light on this

by differentiating between eight 'categories of interest' among promoters of EE/ESD particularly in relation to the role of nature. The authors are not explicit about the ideology underpinning these categories but these may be related loosely to a continuum of ideological positions proposed by Stevenson (1987) who identifies four 'approaches' that fall either within a conservative ideology that seeks to reform the current system or an ideological position that proposes radical reform *of* the system. As Table 2.2 suggests, these four approaches correlate well with O'Riordan's (1989) perspectives on environmental politics (2.1.1).

Scott and Gough (2003c) stress that each of these categories, while emphasising different outcomes, is legitimate and has something to contribute to EE/ESD while none of them can individually claim to represent the field.

Robertson & Krugly-Smolska (2006) identify six 'conceptions of environmental education'. Apart from their first category (Utility) there is an assumption that the goal of this education is the acquisition of skills, knowledge and attitudes. With some re-ordering of the authors' original list, these 'conceptions of EE' can be mapped approximately onto Scott and Gough's categories (Table 2.2). The table also identifies authors whose work illustrates positions along this continuum. Accepting a large overlap, a chronological order appears evident with socially conservative approaches being succeeded by more radical literature over time. Interestingly, this runs counter to the trends in mainstream education identified in Section 2.2.2, a point of particular significance to this enquiry.

The work of the Ellen MacArthur Foundation (EMF) is an anomaly in this chronological pattern. The Foundation does not profess any specific ideological positions, however it does propose a radical shift in the economy from a linear 'take-make-dump' approach (Webster & Johnson 2008) to a circular economy that reflects ecological cycles. Similarly, the work of van Matre and Cornell aims to promote a deep understanding of ecology through immersion in the natural environment without challenging the political status quo.

Fien (1993b) constructs a vision of what he terms a "desired 'red-green' future" (*Ibid*: 12), thus making explicit the view that socialism has a role in providing for the needs of both planet and people, a view echoed by Huckle (1987; 1993; 1999) and O'Riordan (1989). For these authors, if education simply reproduces the hegemonic 'Dominant Social Paradigm' it will automatically contribute to our unsustainable development patterns.

The call for a shift in the purpose of education is addressed by writers such as Sterling (2001) who would recast the whole enterprise as 'sustainable education' and Bowers (2002) who proposes an education system underpinned by 'eco-justice'. Both authors adopt a postmodern stance, avoiding overtly socialist or other preconceived political narrative in favour of a re-negotiated social order informed by deep ecological understanding. Foster (2008) suggests harnessing the creative energy of capitalism to help 'learn our way forward' (2.1.2).

Table 2.2 is presented in separate sections because, while there appears to be some connection between the continuum of ideological positions and the various categories of practice, there are no hard and fast relationships as one moves from the conceptual to the practical level. This may be because, as Biesta (2009) suggests, educational ideology masks personal values and beliefs and given the subjective nature of such beliefs, there is no room for rational discussion. While one might prefer or gain skills in various practices, one does not easily shift ideology.

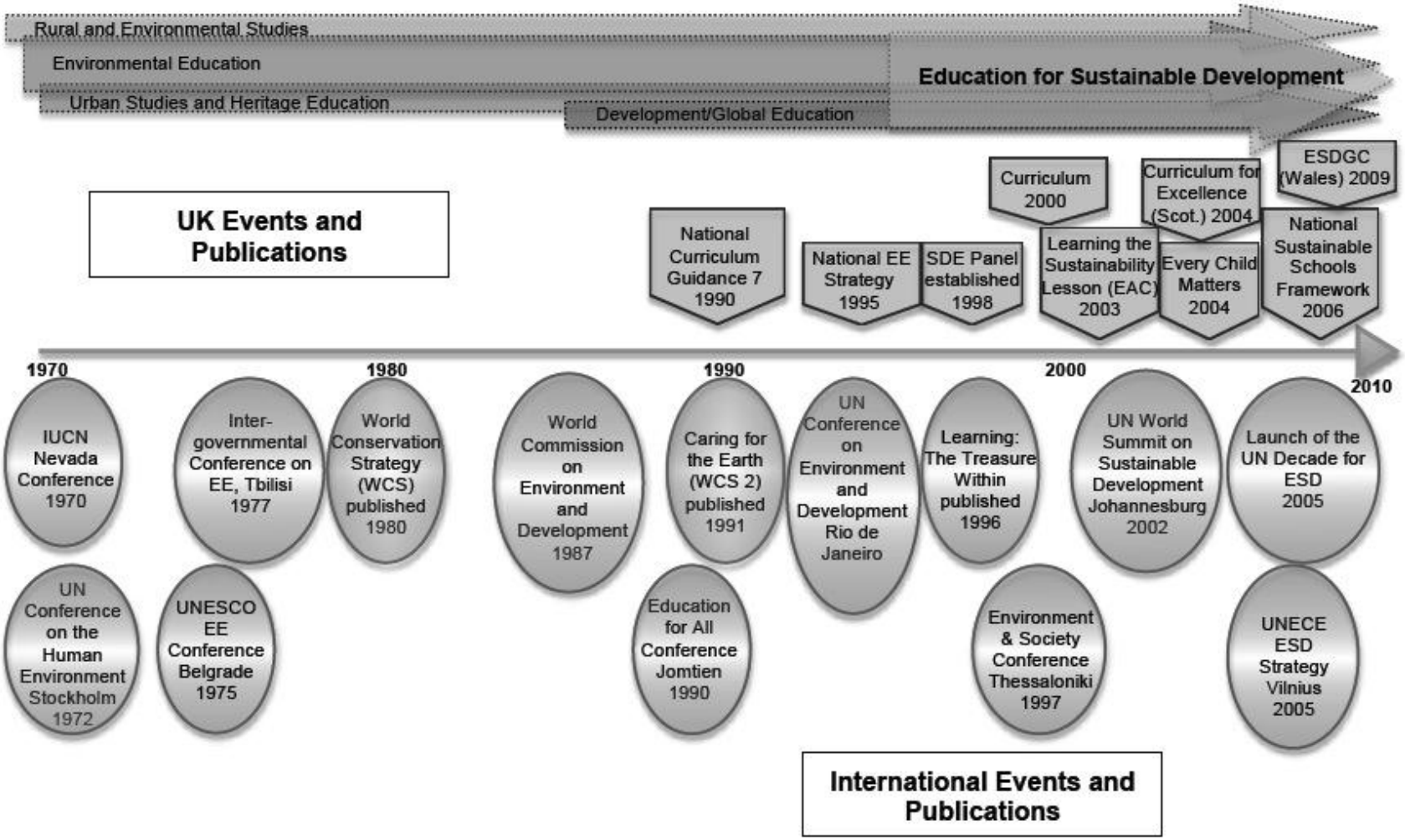

Fig. 2.6 The development of ESD in the UK and some international milestone events (Source Vare & Scott, forthcoming)

	Ideological continuum Conservative ⟷ Radical			
Perspectives on environmental politics (O'Riordan 1989)	Technocentrism		Ecocentrism	
	Intervention	Accommodation	Communalism	Gaianism
Ideological positions underpinning EE (Stevenson 1987)	Conservative reform (within the present system)		Radical reform (of the present system)	
	(a) The technical approach	(b) The political approach	(a) The socially critical approach	(b) The alternative approach

	Change perspective Conservative ⟷ Radical							
Categories of interest of EE (Scott & Gough 2003c)	1. Sharing the joy of nature to give life-enhancing experiences	2. The study nature to enhance under-standing of it	3. Nature as an heuristic to foster transferable learning	4. Using environments as heuristics to achieve sustainability goals	5. Advocating behaviour changes in order to achieve sustain-ability goals	6. Advocating social change in order to achieve sustain-ability goals	7. Using sustainability issues as contexts for engaging in democratic social change	8. Promoting nature as a metaphor for a preferred social order
Six conceptions of EE (Robertson & Krugly-Smolska 2006)	(2) Aesthetics	(3) Ecology	(1) Utility	(4) Environmental ethics		(6) Socio-cultural criticism		(5) Deep ecology
Representative texts	van Matre 1972 Cornell 1984 Emmons (1997)	Hungerford and Volk 1990 EMF 2012	Jensen & Schnack 1997 Huckle 1987,1993,1999 Fien 1993 a&b			Sterling 2001; Bowers 2002 Foster 2008		

Table 2.2 A continuum of political and ideological positions plus conceptions of EE/ESD

Furthermore, not all dichotomous depictions relating to EE/ESD map naturally onto this particular ideological divide. Sterling (2001), for example, highlights the division between mechanistic and ecological paradigms. Mechanistic thinking would appear to map onto the conservative/technocentric end of the continuum while Sterling's ecological paradigm maps squarely under ecocentrism. However, one can seek to achieve radical social change in a mechanistic fashion (witness the recurrence of 'blueprints' and calls for 'scaling up' and 'replicable models' in policy discourse regardless of its underpinning ideology). Similarly, technical interventions can be approached systemically – translated as 'strategically' in policy language. Sterling also sees instrumental education as a peculiarly conservative notion whereas both ends of the continuum could be said to treat education instrumentally, recognising it as a means to achieving ideologically different ends.

Jickling (1992) would have no part in this, for him the notion of education *for* sustainable development or anything else, runs counter to the expansive, emancipatory aims of a liberal education. Yet Jickling recognises the value of environmental education, in doing so he highlights a generic educational dilemma: that of balancing a desire to inculcate learners into our society while promoting in them preparedness for change.

Bonnett (2002) identifies these two aspects of education as making specific contributions to sustainable development. Firstly, education is seen as:

> "…a vehicle for actively promoting positive attitudes and patterns of behaviour that reflect the requirements of sustainable development … [that] … pre-specifies generalised tangible outcomes to be achieved by schools" (*Ibid*: 10).

The second contribution is:

> "…to develop pupils' own critical ability and interpretation of issues in the context of first hand practical situations that they confront" (*Ibid*: 10).

Rather than see these as separable functions of ESD or occupying different points on a continuum, this author (Vare and Scott 2007) has emphasised their complementarity (1.5.2). ESD 1 on its own would provide an uncritical diet of normative 'do's and 'don't's. At best this would lead to "empty moralising" or assuming that whatever is agreed will come into being (Sayer cited in Lotz-Sisikta & Schudel 2007) at worst it would "reduce our capacity to manage change ourselves and therefore make us less sustainable" (Vare & Scott *op. cit*.: 195). Conversely, a diet of ESD 2 in isolation would lack the content to critique; criticality can be applied in any field regardless of its relevance or utility to sustainability.

Perhaps the closest example of ESD 1 *and* 2 working together in practice can be found in the Danish concept of 'action competence' (Jensen & Schnack 1997). This approach provides relevant context complete with normative values yet encourages a re-visioning of what-might-be and a critical analyses of the entire 'knowledge landscape' i.e. not just the *what* but the *why* of any given situation.

This two-sided nature of ESD is also explored by Jickling and Wals (2008) who differentiate between transmissive and transformative approaches to learning. Their heuristic highlights a didactic 'Big Brother sustainable development', roughly analogous to ESD 1, and 'enabling thought and action: beyond sustainable development' which corresponds with ESD 2. The authors make their preference clear for the non-conformist, transformative end of the spectrum. Their use of the pejorative term 'Big Brother' reflects a socially critical tradition that favours emancipation over enculturation. By contrast, ESD 1 and ESD 2 does not present a case of 'either-or' but rather a 'yes-and'.

2.2.5 EE/ESD and 'good education'

Turning to the relationship between EE/ESD and 'mainstream' education, we can relate ESD 1 and 2 to the three functions of education conceptualised by Biesta (2009).

- *Qualification* – skills and understanding
- *Socialisation* – transmission of norms for a smoothly running society
- *Subjectification* – promotes autonomous actors who are critically, creative, independent thinkers, i.e. people who are capable of altering the status quo.

According to Biesta, these three functions are not necessarily in tension but can work together, subjectification however cannot be taught in the traditional sense, rather it comes about, or emerges, in response to the experience of being taught in a given setting:

> "it is precisely not about the insertion of 'newcomers' into existing orders, but about ways of being that hint at independence from such orders" (*Ibid*: 40).

Just as Vare & Scott (2007) explain how an extreme form of ESD 1 (analogous with *socialisation*) can stimulate ESD 2 (*subjectification*), similarly Biesta tells us:

> "…a strong focus on socialisation into a particular citizenship order can actually lead to resistance which, in itself, can be taken as a sign of subjectification" (Ibid: 42).

The role of *qualification* remains unclear in relation to ESD 1 and 2 but could, in a radical vision of sustainable education, be seen as the means by which success in EE/ESD is measured. Biesta is careful to point out that these three functions of education are not separated easily; rather they overlap as in a Venn diagram. Qualification cannot therefore be seen as a neutral means of measuring knowledge or skills acquisition because the manner in which qualification is achieved will have consequences for socialisation and subjectification. Viewing qualification as the ultimate measure of a school's effectiveness underplays the value other functions, which are likely to take place anyway.

This places the burden of responsibility upon schools and teachers to resist the diminishing tendency of narrow inspections. Only then can education hope to achieve crucial features of EE/ESD such as 'criticality' (Foster 2008), ESD 1 and 2 held in balance (Vare & Scott 2007 2008) and, more generally 'good education' (Biesta 2009). A common theme here is the importance of open-ended learning; as Biesta states:

> "…(to) provide opportunities for students to explore their own ways of thinking, doing and being, can be more desirable than those that effectively proceed towards a pre-specified end" (Biesta 2009: 36).

This reinforces emergent qualities in education (Osberg & Biesta 2008). Yet the modernist thinking that has underpinned the steady development of universal education in England has sought unitary solutions. For Haste (2003) this has created "cultural anxiety about ambiguity and diversity" (*Ibid*: 221). More recently neoliberal tendencies have coloured those modernist goals rendering individualism and economic thinking the 'common sense' approach (Ball & Olmedo 2013). Stevenson (1987) observes that one consequence of qualification or 'credentialling' is that the students see the role of schooling in terms of their individual academic achievements:

> "Schools thereby convey norms of individualism, competition, achievement and independence: norms that prevail in the dominant culture and maintain the existing structure of society" (*Ibid*: 145).

This then is a key dilemma for EE/ESD when it attempts to join the 'mainstream' of formal schooling: does it accommodate current policy demands and seek to demonstrate its efficacy in terms of the narrow conception of academic achievements or does it insist on ensuring that unforeseen outcomes remain valued within formal education? For Haste (*op. cit.*) the arguments are stacked in favour of the latter:

> "A first step in developing a less restrictive outlook is to privilege and foster the capacity to manage ambiguity and diversity fruitfully… Support for this comes not only from a philosophical position but also from the extensive work in the natural sciences and mathematics on chaos and complexity" (*Ibid*: 221).

However, writing twenty years after his initial analysis of the gap between policy rhetoric and school practices in environmental education, Stevenson (2007) concludes that the gap has not only persisted but probably increased over the past twenty years" (*Ibid*: 265). In short there is no simple answer, nor perhaps, given our postmodern condition, should there be. As Berlin (1958) has cautioned, there are no single, simple or 'final' solutions.

2.2.6 Gaps and mismatches

The foregoing discussion highlights the dilemmatic nature of EE/ESD vis-à-vis formal education. While the literature suggests a transformative role for EE/ESD, repeated international calls for the practical application of such ideas (e.g. UNESCO-UNEP 1977; UNECE 2005; UNESCO 2005), highlight the gap between theory and practice. This is variously characterised as:

- a discourse–practice gap (Stevenson 1987)
- an environmental education philosophy–practice gap (Barratt Hacking *et. al.* 2007)
- a rhetoric-reality gap (Fien 1993a; Grace & Sharp 2000; Edwards 2011).

Fien identifies the 'rhetoric-reality gap' between classroom practice and this preferred ideology as a 'curriculum problem'. For Fien (1993a & b), 'critical curriculum theorising' is an essential tool for educators who see education having a counter-hegemonic role. Stevenson (2007) sees the need for policy discourse to be "(re)contextualised and transformed by teachers into their own discourse of practice, and most importantly, into pedagogical actions." (*Ibid*: 269). More significantly for this research, in light of the recognition that EE/ESD is 'highly complex and imprecise' and therefore challenging to enact, Stevenson calls for:

> "These challenges … (to) be examined in light of changes in the contexts and conditions of teachers' work" (*Ibid*: 270).

Tormey *et. al.*(2009) in discussing the challenges of working across disciplines on EE/ESD are even more explicit in calling for deeply contextual studies to find a way forward:

> "To get at a workable solution to this problem we need to focus not just on a better understanding of other people's disciplines but also on a better understanding of our own discipline and its own assumptions as to how questions should be framed and answered. To put this differently, we need to understand the culture and history of our own disciplines" (*Ibid*: 2).

Cultural-historical activity theory is a theoretical framework designed to do just this and it is to Activity Theory that this thesis review now turns.

2.3 Cultural-historical Activity Theory

In seeking an approach that can give an account of human action within and in response to a given context, no single disciplinary lens is adequate. Wertsch (1998) cites the approach of Burke who analyses situations through the pentad of Act, Scene, Agent, Agency and Purpose. Wertsch makes the point that in approaching complex issues, different perspectives need to be co-ordinated but acknowledges that this is no easy matter:

> "…some accounts of action that begin with an agent might attempt to incorporate information about the scene as well, but when it comes to extending this account even further by addressing, say, how the purpose or the instruments ("agency") used play a role, the picture gets impossibly complex" (*Ibid*: 16).

Wertsch suggests *mediated action* as a way of 'living in the middle' of these different perspectives; this involves 'a dialectic between agent and instrumentality'. In attempting this, there is a tendency to over-emphasize the individual over the society – yet Wertsch suggests there are counter currents to this from Vygotsky, to Dewey to Burke that remind us that the environment is something with which we interact rather than simply act upon. Thus Wertsch offers a promising methodological avenue for this research enquiry.

This exploration of human activity 'mediated' by cultural tools and artefacts builds directly on the work of Vygotsky. Daniels (2008) cites Puzyrie's observation that Vygotsky's cultural-historical theory is like a city with its visible, widely-acknowledged features as well its unseen structures known only to its long-standing residents. With so many possibilities, care is required to focus on those aspects of this theoretical 'city' that have relevance to this research. This final section of the literature review investigates: (i) early beginnings and links to other learning theories; (ii) the emergence of the second and third generations of Activity Theory; (iii) examples of Activity Theory being used in relation to EE/ESD.

2.3.1 Early beginnings

Inside the cover of the Harvard University Press edition of Vygotsky's (1978) "Mind in Society" is reproduced a fragment of Vygotsky's notes, the translation tells us that he has written:

> *"Always assuming two stimuli, we must answer the following questions:*
> *1. How does one remember stimulus S1 with the aid of stimulus S2 (where S1 is the object and S2 is the instrument).*
> *2. How is attention directed to S1 with the aid of S2.*
> *3. How is a word associated with S1 retrieved via S2 and so on"* (*Ibid*).

This well-chosen fragment provides an insight into the mind of Vygotsky as he works towards a theoretical framework, noticing how children solve practical tasks with the help of speech, as well as their eyes and hands. The more complex the task, the more important speech becomes. By recognising the social significance of language for individuals, Vygotsky bridges the ideological divide between psychology and sociology (Billig *et.al.* 1988).

> "In this way [the theory] seeks to overcome the dilemma between individual learning and social learning" (Engeström 1987).

Vygotsky notices how speech allows us to plan ahead, transfer knowledge down generations so children do not have to start to understand the world anew, it allows us to marshal absent resources and modify behaviour, thus it is critical to human development:

> "The schism between natural scientific studies of elementary processes and speculative reflection on cultural forms of behaviour might be bridged by tracing the qualitative changes in behaviour occurring in the course of development. Thus when Vygotsky speaks of his approach as "developmental," this is not to be confused with a theory of child development" (Cole & Scribner in Vygotsky, 1978: 7).

The relationship between an individual subject and the environment they act upon, with the aid of a mediating artefact can be illustrated with a simple diagram (Fig 2.7) where S is the subject (Vygotsky's 'S1'), R is the environment and X is the tool or mediating artefact (normally speech or S2) that S is using in order to relate with R across time and space. This is the 'first generation' of Cultural-historical Activity Theory (CHAT).

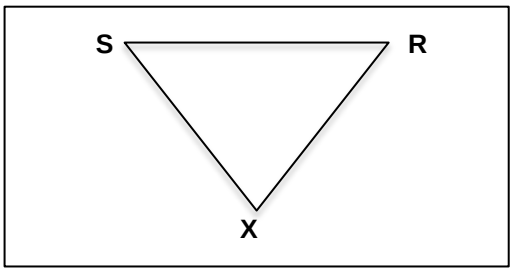

Fig. 2.7: Vygotsky's first generation Activity Theory model

This theoretical framework originated in soviet Russia in the 1920's with Lev Vygotsky and his followers Luria and Leontiv (Engeström 2002). It was introduced to the West by the American Michael Cole and popularised by Yrio Engeström of Helsinki in the 1990s (Nussbaumer 2012).

2.3.2 Activity Theory and learning

Engeström (1987) reminds us that learning does not happen simply within the mind of the individual but should be understood as something distributed between individuals and their material artefacts and language. He expands the unit of analysis and looks at who learns; for him it is clear that it is not the isolated individual but a functioning activity system that learns.

Vygotsky's work resonates with other theories of social learning such as *collective intelligence* (Brown & Lauder 2001), *situated learning* (Lave & Wenger 1991) and the work of Dewey (1916) and Wertsch (1998). The conceptual roots of situated learning can be traced directly back to Vygotsky's concept of the zone of proximal development (ZPD) (Rieber and Carton 1987; Wertsch 1985). Whereas Vygotsky saw this as the distance between that which we already know and that which we *could* know through collaboration with a 'more experienced other', for Lave & Wenger the ZPD is a zone of social learning. This family of theories sits well with a *social learning* discourse (Wals 2007) within EE/ESD.

Wertsch (1998) gives the example of a pole-vaulter whose activity is the sum of many other actors and mediating artefacts – not least a pole. Similarly, a teacher cannot say, truthfully, that *I* taught those students, when in fact they made use of a classroom, a curriculum, resources and above all, a culturally-induced expectation of the students' and teacher's role in relation to each other. With this understanding the teacher might say, "I, and a range of meditational means, taught the students."

This is *not* the dominant discourse in schools today where popular theories such as personalised learning (Hargreaves 2004) and resilient learners (Claxton 2004) reflect 'methodological individualism', which Wertsch (*op. cit.*) traces back to Hobbes. Teachers are generally familiar with 'communities of practice' (Lave & Wenger *op. cit.*) as this applies to their professional development but this is not readily transposed to the classroom. While

Activity Theory appears to resonate with academic discourse in EE/ESD, it may not necessarily reflect the theories in use in the settings where EE/ESD is put into practice.

Engeström (2002) sees learning as a multi-layered phenomenon; he cites Bateson's three learning types:

- Learning 1: basic conditioning
- Learning 2: the rules of the game – how to behave, win, cheat, experiment
- Learning 3: something that is not yet there – learning by constructing a new activity.

For Engeström, Learning 3 is 'expansive learning', an aspect of Activity Theory that has direct relevance to this enquiry (3.1.3). This occurs as a means of overcoming contradictions that arise within an activity system. The next section provides a link between Vygotsky's diagram (Fig. 2.7) and Engeström's familiar triangular diagram that is used in this enquiry.

2.3.3 Second and third generation activity theory

The progression from Vygotsky's first generation activity theory to the familiar triangle is illustrated with Fig 2.8 and Fig 2.9. These are reproduced from the electronic version of Engeström (1987) because (a) they demonstrate the origin of the triangle model and (b) they are not readily available through other Activity Theory texts.

Engeström (1987) shares an important insight by Lewontin, that organisms, within their lifetimes, do not *adapt* to environments, rather they *construct* them through the direct dialectical interaction between the organism and its environment. This is demonstrated by Fig. 2.8 that comprises the first generation diagram annotated with 'animal form' activity.

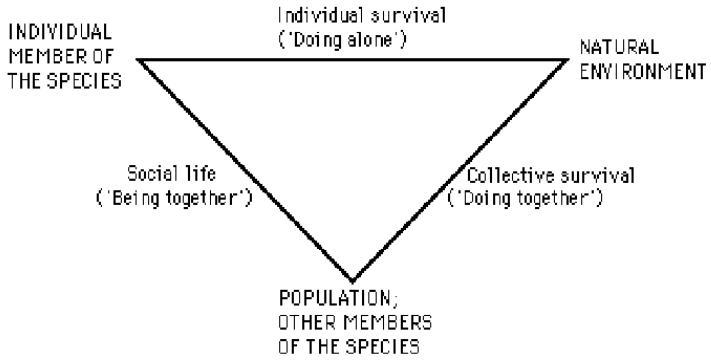

Fig. 2.8: The general structure of the animal form of activity

There is a sharp distinction between this simple animal-environment interaction and the more complex system of humans (Fig. 2.9) because humans have language as a means of mediation. Engeström explains that with 'higher order' animals:

> "…we witness ruptures in each of the three sides of the triangle …The uppermost side of 'individual survival' is ruptured by the emerging utilization of tools … The left hand side of 'social life' is ruptured by collective traditions, rituals and rules, … The right hand side of 'collective survival' is ruptured by division of labor, influenced by the practices of breeding, upbringing and mating…" (*Ibid*).

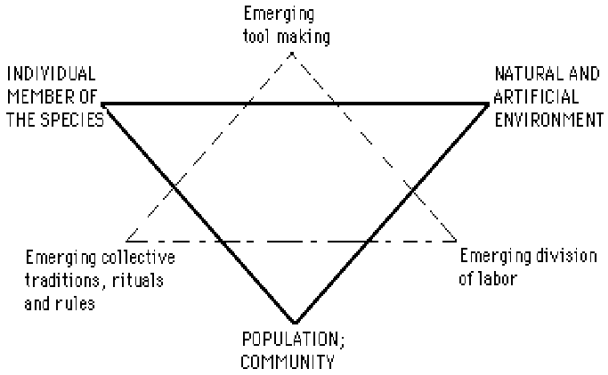

Fig. 2.9: The animal form of activity 'ruptured' by the activities of higher order animals

Human cultural evolution, with its use of language and other sophisticated tool use unifies these separate ruptures while "what used to be ecological and natural becomes economic and historical" (*Ibid*).

The classic Activity Theory triangle is visible in Fig. 2.9 and it is a small step to emphasise these new unified activities and produce the second generation diagram (Fig. 2.10):

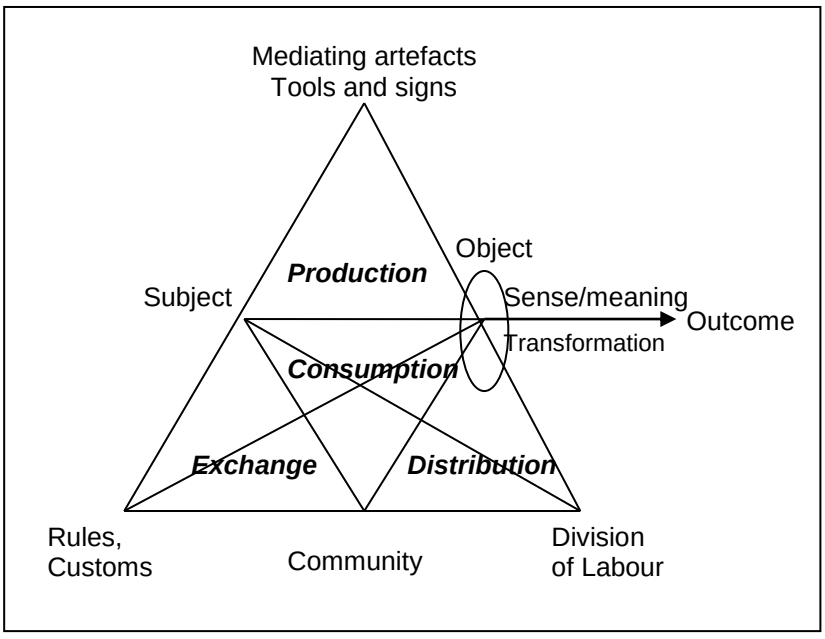

Fig. 2.10: A second generation activity system showing the four subsystems (in bold italics) (adapted from Engeström in Jonassen & Land, 2000: 99)

To introduce the four subsystems of *production*, *consumption*, *distribution* and *exchange*, Engeström calls on an analysis provided by Marx in his introduction to *Grundrisse.* This explains that activity begins with production and ends with consumption, leaving distribution and exchange as the middle. In fact the distinction between these activities is artificial as human activities are rarely so one-dimensional although production dominates throughout.

The third generation of Activity Theory (Fig. 2.11) occurs where activity systems interact with each other and collective learning takes place through dealing with the tensions and contradictions that this creates (Nussbaumer 2012).

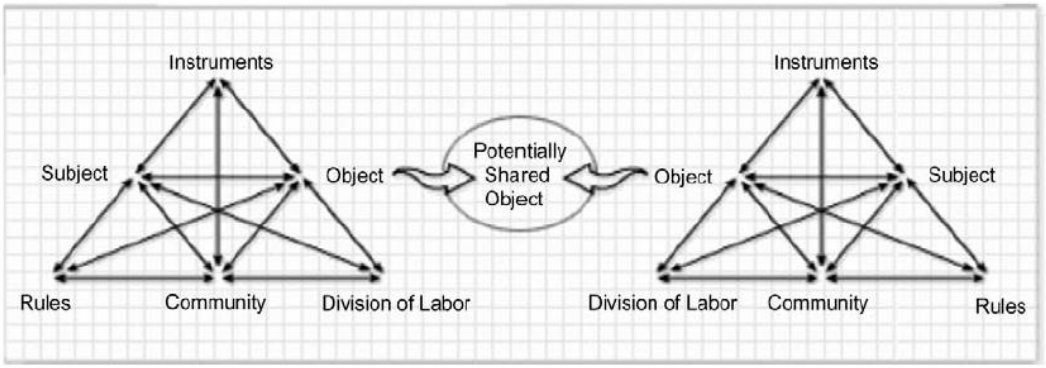

Fig. 2.11: Third generation Activity Theory - Activity systems interacting

2.3.4 Activity Theory and EE/ESD

The resonance between Activity Theory and EE/ESD has been mentioned earlier (1.5.1); more specifically, some potential areas of overlap are shown in Table 2.3:

Aspect of Activity Theory	EE/ESD
Inter-disciplinary (e.g. cultural and historical)	SD is inherently inter-disciplinary. Action competence uses a 'knowledge map' that covers various aspects of issues (Jensen & Schnack 1997)
Systemic framework	Sterling's (2003) PhD thesis virtually defines EE/ESD as systems thinking
Learning through contradictions	SD is learning our way forward (Foster 2008) to overcome 'wicked problems' (Tomkinson 2009)
Expansive learning	Some alignment with ESD 2 (e.g. Vare & Scott 2007, 2008) plus notions of resilience and transformation
Collective learning	Social learning is a well-defined strand within EE/ESD (Wals 2007)
Change perspective	Commonly expressed belief that one has to 'be the change' to make change happen (Orr 2004)
Underlying processes (e.g. consumption/production)	Socially-critical tradition, looks for underlying causes; does not take activity at face value (Fien 1993a; 1993b)

Table 2.3 Potential overlaps between Activity Theory and EE/ESD

Despite this apparent common ground, literature searches retrieved remarkably few examples of Activity Theory being applied in the field of EE/ESD. Two papers from Canada (Boyer and Roth 2005; Krasny & Roth 2010) are based on the same study of social-ecological systems in British Columbia. A more recent study in Botswana (Silo 2013) uses Activity Theory for a case study of environmental education work in a primary school.

In both cases, Activity Theory makes a distinctive contribution to the findings with Boyer and Roth (*op cit.*) observing how interactions between activity systems lend stability to a participants' network. Krasny & Roth (2010) stress the 'fluidity' of those interactions and make specific reference to the way in which expansive learning could help build resilience; interestingly they use action competence as an additional conceptual framework.

Silo's approach is semi-ethnographic, spending time in one school, observing and interviewing both staff and pupils, also using action competence as a second conceptual framework. Silo finds that teachers have to overcome culturally and historically informed attitudes in order to open dialogue with pupils but suggests this will be necessary in order to implement a new national policy on participatory learning in schools.

Two other studies were examined that use Activity Theory in educational research but not EE/ESD *per se*. McNicholl & Blake (2013) exploit the multi-faceted nature of Activity Theory to explore cultural and historical dimensions of teacher education in universities. The work of Terantino (2009) on the other hand is, in common with this enquiry, an early application of the theory for a PhD thesis; in this case, examining distance learning courses on Spanish language. Terantino lists the tools identified and levels of contradictions encountered whereas McNicholl & Blake synthesis existing knowledge of the cultural and historical setting in order to reach more discursive conclusions.

In each case, because Activity Theory is not a method *per se*, it requires an understanding of the theoretical framework in order to fully grasp its specific contribution to each study. This highlights the need to be explicit about which dimensions of Activity Theory are being applied in this enquiry.

2.4 Looking ahead

This literature review has highlighted the contested nature of the concept of sustainable development, suggesting that it is fertile ground for dialogue and social learning. The related field of EE/ESD is equally contested with a range of underpinning philosophies in play among its proponents. The systemic approach of Activity Theory, with its view of learning as a collective and emergent process, therefore appears to be well suited to researching the field of EE/ESD.

The nature of EE/ESD practice in each school will depend on the approaches and goals of the professionals. Any analysis of a school's activity system must therefore clarify the object of the system as a first step. This insight is typical of the way in which a methodology based on Activity Theory informs this research. This is discussed in further detail in the following chapter.

Chapter Three: Methodology

This chapter sets out a conceptual framework that seeks to embrace realist *and* interpretative views before proceeding to an account of Cultural-historical Activity Theory. The research process is described in detail before concluding with a consideration of ethical issues.

3.1 Theoretical framework

3.1.1 Competing ontologies and epistemologies

In defining the nature of being, the field of EE/ESD presents a dilemma of its own. It is at once concerned with the measurable impact of human interactions with the biophysical environment while simultaneously attempting to build capacity for negotiating a diversity of interpretations of the world. Adopting a firm ontological and epistemological position appears to risk alienating those who hold an alternative view; exactly what this researcher, with a background in negotiating competing perspectives among stakeholders, would wish to avoid. A brief review of alternative theoretical approaches is undertaken here in order to clarify the selection of the conceptual framework underpinning this research.

Over recent decades, three paradigms have competed for primacy in environmental education research: behaviourist-positivist, interpretivist and critical theory (Mrazek 1993). The term *paradigm* here is questionable; Disenger (*Ibid*) prefers the term *patterns* given that the three views are competing and this would suggest that no single view is in the generally supported position worthy of the name 'paradigm'. This in turn permits more flexibility in selecting a specific *pattern* than the term ‘paradigm’ might suggest.

Behaviourist-positivist approaches

Researchers who adhere to the positivist approach have an ontological view of a ‘real’ world that exists ‘out there’ governed by immutable laws, relationships and facts that await our discovery and understanding.

The epistemological position of positivism is one of ‘knowers’ understanding the world in terms of external objects and processes. For those wishing to measure and understand human impacts on our planet, this degree of ‘realism’ is a *sine qua non*. Gough & Stables (2012) make the case that:

> “…issues of human survival and security cannot credibly be conceived other than in terms of biophysical reality” (*Ibid*: 369).

Examples of EE/ESD research include the work of Hungerford and Volk (1990) and Sivek (1989) who sought to identify indicators or ‘predictors’ of environmentally responsible behaviour. Variables are isolated and measured 'objectively' in quasi-experimental studies. However, people do not experience isolated variables but encounter elements *in relation* to each other within complex environments. Furthermore, we describe our experiences using subjective, value-laden language that does not lend itself to objective forms of measurement, which in turn “gives rise to a fact-value dichotomy” (Marcinkowski in Mrazek: 43).

In the face of criticism, positivism has moved away from an ontology of ‘naïve realism’ to one of critical realism (Guba 1990). Epistemologically, *post-positivism* has substituted objectivity with inter-subjectivity, which reflects the view that researchers’ subjectivity will influence their findings – but objectivity remains a ‘regulatory ideal’ (Guba 1990; Connell 1997). This stance fully accepts the Cartesian view that human perceptions of reality can never be perfect – but reality is ‘out there’ nonetheless. This goes some way to bridge the

divide between a realist ontology and an acceptance that the way we come to know and understand that 'reality' will depend upon how we interpret it:

> "Postmodernity converges with writers from the philosophy of science on this point in disclaiming the possibility of pristine perception. Even Karl Popper, for example, called into question the supposedly value neutral observations of value neutral observers, preferring instead an account of the most basic observational statements as 'theory impregnated.'" (Webb 1996: 200)

According to Webb, positivist Science accepts that thought is culturally and historically constructed, an observation that underpins the methodology of this research.

The interpretative approach

Ontologically, this differs from positivism by acknowledging multiple realities, constructed through human interaction. Epistemologically, events are understood through mental processes of interpretation that interact with social contexts (Cantrell in Mrazek 1993).

As Pretty notes in relation to agricultural research in developing countries:

> "All actors, and particularly those with a direct social or economic involvement and interest, have a uniquely different perspective on what is a problem and what constitutes improvement" (Pretty 1993: 3).

This resonates with the author's experience of working with marginalised communities. Social scientists cannot observe thinking so they must *interpret* what they see. We do this every time we attempt to communicate what we have sensed. Habermas (1983) suggests this has three consequences for researchers. Firstly, interpreters have to sacrifice the superiority of the 'observer' position; since they need to negotiate validity claims, this means communicating with subjects and clarifying meaning with them. The second consequence is that interpreters have to accept that what they are told is itself open to interpretation by others – including the subjects themselves. This underlines the importance of presenting procedure in a transparent manner so that observers can judge its rigour. Thirdly, research becomes context-dependent to a level beyond the comfort of post-positivists and so it does not conform to a realist ontology.

Critical theory

This approach has a constructivist ontological perspective that sees reality as a negotiated entity and understands knowledge as an emergent notion derived from inquiry. It is through *dialogue* that we come to know 'reality'. As Gough (2002) explains, this provides a conceptual package:

> "… I take the position that reality is unknowable except through its relationship with us and, therefore, that ontological questions can only be distinguished from epistemological questions as an academic exercise. In other words, from where I stand, the distinction between epistemological and ontological questions is not strategically useful for organising approaches to inquiry" (Gough 2002: 6).

While critical theory shares a multi-voiced, negotiated epistemology with the interpretative approach, it is explicit in seeking change as an outcome of enquiry. Rather than investigating the 'what', critical theorists ask 'why' and 'who benefits?' Researchers, choosing the Feminist label, take this further; making no secret of their ideological position, they set out to critique 'what is', whether it works or not (Rosaldo cited by McKenzie 2005).

Despite arguments in favour of this approach, which underpins education *for* the environment (Fien 1993a; Huckle 1987, 1993, 1999), it has failed to bring about the radical change that it seeks. This raises concern at a practical level. A pragmatic view demands that approaches *work* regardless of how attractive their rhetoric. Walker (1997) identifies serious failings in socially critical approaches to EE/ESD research observing that it:

- ignores the constraints on teachers in terms of school structures
- does not have "an appropriate and adequate theory of change and implementation theory" (*Ibid*: 160)
- is indifferent to teachers' own theories of change and problem solving strategies.

To a researcher with a background in projects seeking to promote positive social change, critical theory has immediate attractions; however, if critical theory appears inadequate in the face of 'real-life' contexts faced by professionals, then an alternative approach is required.

The 'post-post' era

Critical theory, with its appetite for emancipation and problematizing dominant discourses, represents a strand of postmodernism, which Lyotard (1984) famously describes as "incredulity towards metanarratives." This has given rise to a broad range of approaches that have sought to differentiate themselves from their precursors with the prefix 'post', from post-critical to post-structuralist (Hart 2005). While Hart (2000) had earlier countenanced a 'non-sectarian' approach to competing research traditions, Dillon and Wals (2006) are concerned by this explosion of 'traditions' and warn against mixing ontological and epistemological positions without clear justification. This is not a case of 'anything goes,' rather it implies additional responsibilities. As the post-critical researcher McKenzie (2005) explains:

> "Ethically and politically, as environmental education researchers in the post-post period, it indeed seems we have a responsibility to consider how our research is legitimated, in turn, and what it legitimizes" (*Ibid*: 460).

This suggests that particular care is required when establishing conceptual frameworks that attempt to combine research traditions.

3.1.2 An emerging framework

The practical advantage of a realist ontology is compelling but positivist demands for qualities to be reduced to measurable, objectively verifiable properties jars with our human experience of the world. However, even as Mrazek (1993) compiled accounts of the three paradigms, the positivist view was being loosened further. Goodwin (2001), for example, calls for a 'science of qualities' arguing that:

> "…complex wholes such as organisms, communities and ecosystems manifest their emergent properties through qualities as well as quantities" (*Ibid*: viii).

This notion of emergent properties (1.6.6) challenges positivism not simply in relation to social sciences. Wheatly (1999) observes:

> "…the strange qualities of the quantum world have shaken prevailing scientific beliefs in determinism, predictability and control" (*Ibid*: 22).

In making the case for a theoretical framework grounded in ontological realism but epistemological relativism Gough and Stables (2012) highlight the complexity of social

systems and recognise the difficulty that emergent properties present to positivist science:

> "…the person is a complex system exhibiting system-level properties that are additional to, and not predictable from, the sum of the properties of the lower level components. Similarly, social institutions may be expected to possess emergent properties that depend upon, but cannot be reduced to, the characteristics of the individuals that make them up" (Gough & Stables 2012: 373).

In other words, our individual interpretations of the world are part of an emergent process that is an essential component of our adaptability, which in turn facilitates our evolution in the 'real' biophysical world. While Gough and Stables adopt a "broadly Darwinian, pragmatic ontology" (*Ibid*: 369) they argue that this is not incompatible with:

> "…a semiotic epistemology … within which human survival is taken to depend upon a continuous process of meaning-making that is *constrained but not determined* by physical resource limits" (Gough & Stables 2012: 369; my italics).

Accepting that our lives are a process of meaning-making through our responses to signs and signals arising from the natural world, as well as humanly-constructed signals such as words, suggests that an interpretative methodology is not only possible but appropriate for researching EE/ESD while accepting that a real world exists independently of ourselves. This then is the realist/interpretative framework that underpins this research. This is further coloured by a critical dimension, reflecting this researcher's professional background of working *with* people, *for* their concerns and not seeing them as 'objects' of study.

Rather than following a positivist, deductive path, this research is founded on inductive reasoning based on observation that allows for unforeseen outcomes discovered along the way. Being open to interpretations also requires a qualitative approach given that quantitative research will not necessarily address issues as they appear in the minds of those who are the subject of this research.

3.1.3 Methodology: Cultural-historical Activity Theory

Within the approach outlined above, the research question demands an understanding of learning and activity as it occurs within a social context (the school); it must therefore attend to both the individual and institutional levels and reference the wider educational system. With this multi-layered interaction in mind, this research is framed by Cultural-historical Activity Theory or CHAT, (hereinafter referred to as Activity Theory) (2.3): This perspective:

> "…affords an analysis of multiple motives working on the same object and distinguishing a diversity of motives among those (collectively) in the subject position" (McNicholl & Blake 2013: 287).

The 'object' that the human subjects direct their actions towards can be any common goal or shared problem; in this case it is taken to be the development of a 'sustainable school'. This analysis should reveal different perceptions of the common goal and possibly the extent to which individuals within the activity system do *not* share the stated goal.

Activity Theory explores actions and relationships at three levels:

- Individual professional sense-making (e.g. the individual teacher and their professional development)

- Collaborative meaning-making and action (e.g. among actors within a school or department)

- Systemic (or collective) responses and development (e.g. whole school or whole system learning and change).

This multi-layered approach offers "a non-reductionist view of human activity" (McNicholl and Blake 2013: 295) paying attention to the cultural and historical dimensions of the activity system elements: i.e. tools; rules and culture; division of labour and community. As well taking a systemic view, Activity Theory resonates with EE/ESD in the way that it:

> "…echoes notions used in the resilience literature … the actions within an activity system are 'characterized by ambiguity, surprise, interpretation, sense making, and potential for change'" (Krasny & Roth 2010: 548).

Three other features of Activity Theory are of particular significance for this research:

- *Dual stimulation* - The analysis of people's use of *tools* and *mediating artefacts* is a distinctive aspect of activity theory because it is central to Vygotsky's concept of dual stimulation. For Vygotsky, the way we approach or work upon an object (stimulus 1) is through a mediating artefact (stimulus 2). As Edwards *et. al.* (2009) put it:

  > "People reveal their understandings in the way they interpret a problem and use the tools that are available to them to work on it" (*Ibid.*: 17).

- *Contradictions* – Engeström tells us that contradictions are not just inevitable features of activity, they are the means by which development takes place; they start out as a particular phenomenon or exception to the rule (Engeström 1987) but then become a driving force for change. These occur at four levels (Fig 3.1):

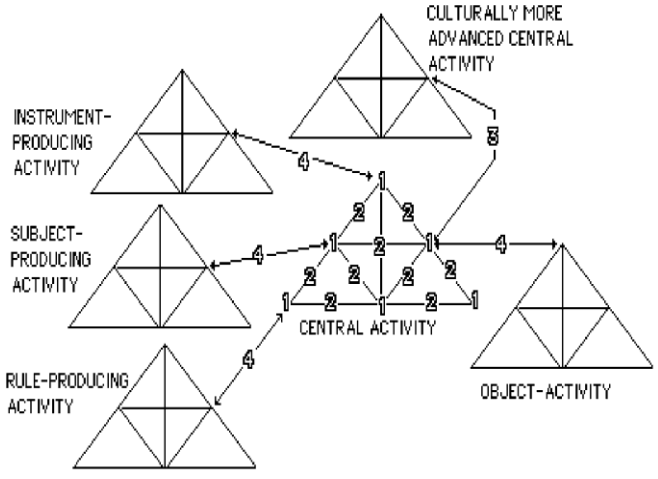

Fig. 3.1: Four levels of contradictions within the human activity system
(Source: Engeström 1987)

Primary contradictions occur within each of the elements of the activity system, e.g. promoting healthy eating in school with imported (Fair Trade) fruit while encouraging a reduction in 'food miles'.

Secondary contradictions occur between the different elements of the activity, e.g. promoting active citizenship while following a curriculum focused on transmitting knowledge within traditional disciplines.

Tertiary contradictions occur between the object of the dominant form of the central activity and the object of a 'culturally more advanced form' of the central activity, e.g. a school focused on recycling learns of others working on the circular economy.

Quaternary contradictions occur between the central activity and its neighbour activities, e.g. where a school's attempts to be more sustainable run counter to short-term economic imperatives, often imposed from outside.

- *Expansive learning* – This is linked to contradictions and efforts to overcome them:

  > "…it is in working towards the resolution of contradictions within an activity system or at the site of a cluster of adjoining activity systems that transformational understanding is revealed" (McNicholl & Blake 2013: 296).

  Expansive learning is the capacity of participants in an activity to interpret and expand the definition of the object of activity and respond to it in increasingly enriched ways (Toiviainen & Engeström 2009). Engeström sees expansive learning as an elaboration of Vygotsky's concept of the zone of proximal development; here he takes it to mean:

  > "…the distance between the present everyday actions of individuals and the historically new form of social activity that can be collectively generated as a solution to the contradictions of the activity" (Engeström, 1987: 174).

  For the purposes of this research expansive learning is sought at any level within the system, i.e. wherever a new form of activity is being developed in response to a contradiction.

The change laboratory

Activity Theory research demands a degree of co-creation; the subjects of the research are not viewed as samples but as *prototypes* (Nissen in Somekh & Lewin 2011), hence people are agent-subjects rather than objects. This 'phenomenologically inspired' preference for working with agent-subjects is central to Activity Theory, which tends to employ "hermeneutic methodologies – above all, the qualitative interview – to elicit participants' subjective perspectives" (*Ibid*: 185).

From its beginnings, Activity Theory research has been interventionist; researchers have not only documented events but have introduced interventions of their own and then reflected on their impacts (Edwards *et. al.* 2009) in what Engeström terms *Developmental Work Research* (DWR). This is conducted through workshops termed 'change laboratories'. DWR reflects the view that social science should make the world a better place, transforming it by working on it together. This resonates with this researcher's professional background of successfully facilitating dialogue among stakeholders with multiple perspectives; it was thus selected as the principle research instrument in the first instance although this later had to be abandoned (3.2.1).

3.2 Process and methods

An exact starting point for research in one's field is difficult to locate; the beginnings of this thesis are located in earlier work on the doctoral programme as well as professional assignments (1.2.3). The research itself underwent a number of iterations before emerging in its present form. Fig. 3.2 maps a three-phase process covering three years.

3.2.1 Phase 1: Literature review and false starts

This research set out to explore inherent contradictions in the development of a sustainable school as well as demonstrating the value of an Activity Theory framework (1.1.2). The literature review encompassed background reading on sustainable development, EE/ESD and Activity Theory. EE/ESD is a broad field and documents were selected because they exemplify certain perspectives. Literature searches conducted in 2011/12/13 sought key word combinations of *environmental education*, *contradictions*, *dilemmas*, *Activity Th*eory and *CHAT* using ProQuest/ERIC. Over twenty relevant articles were retrieved; a special issue of *Environmental Education Research* (Stevenson 2007 a&b) holds several of these. Only two peer-reviewed articles were retrieved on Activity Theory and EE/ESD. A handful of others were found subsequently although they were not about EE/ESD *per se*.

During the initial literature review a secondary school, which had announced publicly its ambition to become more sustainable, was approached as the research setting. Over a four-month period the Development Work Research process was planned in detail with a member of the school's senior management team.

It was felt that the language of Activity Theory could create barriers so the 'change laboratory' was dubbed the 'change team'. Initially the 'team' was to be divided into two groups with ten people in each:

- Students (2 each from Years 7 & 8; 3 each from Years 10 & 11)
- Staff (teachers, assistant staff and hopefully a governor)

Two students (in addition to the ten) were appointed as technicians to video all the meetings and convert the footage to DVD format for analysis.

'Mirror data', used to help illustrate contradictions being worked on by the change team, were to be gathered through interviews with staff and students; where possible, data would also be gathered and presented by students themselves.

Shortly before the inaugural change team meeting, Ofsted inspectors visited the school and deemed it to be 'inadequate'; the school was put into 'Special Measures'. At this point the researcher received an invitation (Appendix Vi) to attend a meeting to discuss the 'change in management priorities' at the school; the research was stopped that day.

Following this setback, a promising start was made at a university with a declared interest in ESD. Negotiations with staff at the institution proceeded well until the true nature of the DWR process was understood. Verbal feedback suggested that there were 'reputational issues' at stake. A rejection message (Appendix Vii) was received subsequently citing competing priorities for staff time.

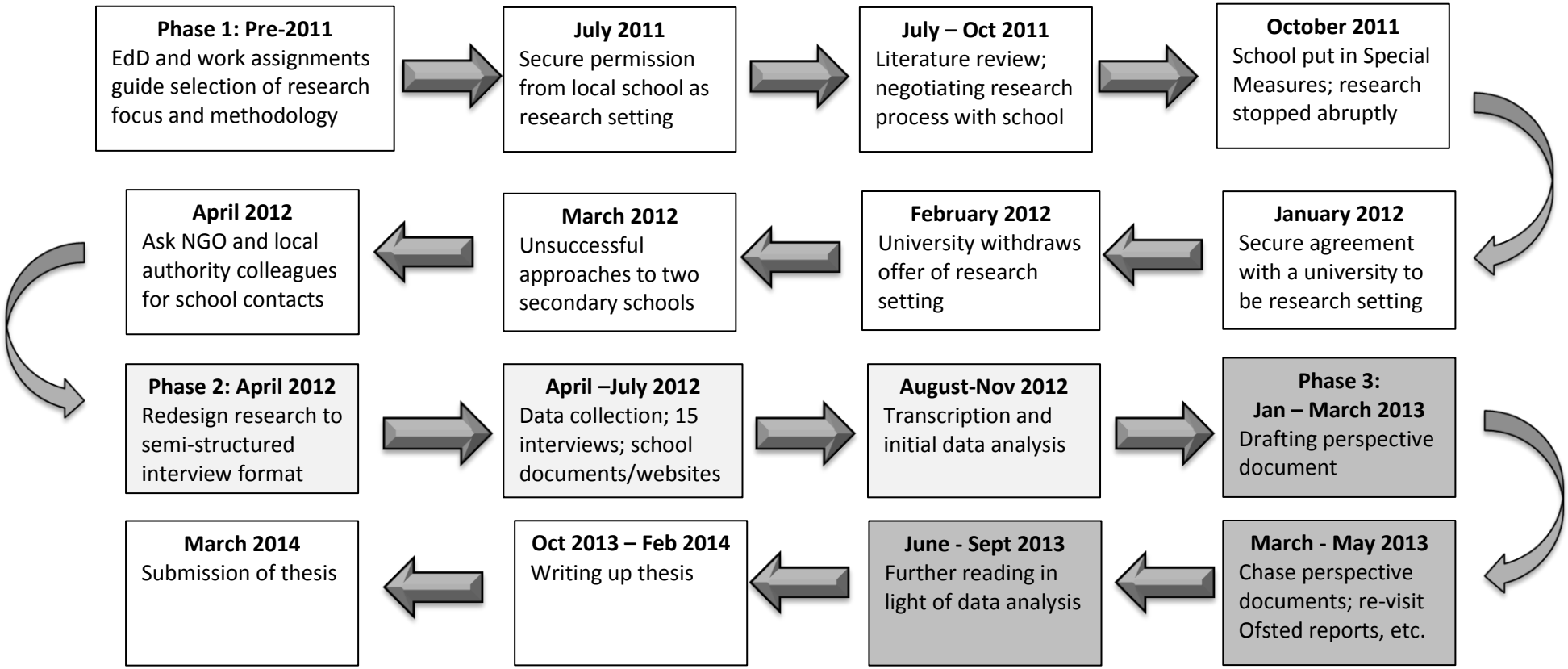

Fig 3.2: Research timeline

3.2.2 Phase 2: From change laboratory to qualitative interview

Pursuing personal contacts in other schools proved fruitless as both of these schools were under 'Notice to Improve' from Ofsted, so their priorities lay elsewhere. Either the change laboratory/DWR approach appeared too onerous or it carried a reputational risk. With time slipping by, the research supervisor's advice to seek 'appropriate individuals to interview' appeared to be the only practical way forward.

Recruiting research subjects

Two colleagues proved particularly helpful in locating potential interviewees; one working with a local social enterprise that runs energy saving projects in secondary schools, the other in a neighbouring local authority supporting the development of Eco-Schools projects in primary and secondary schools.

In approaching prospective interviewees, these colleagues mentioned the researcher's ESD background as a way of building trust in the exercise. The colleague at the local authority added to this by drawing attention to the researcher's academic work:

> "I have received a request from an esteemed colleague, Paul Vare, Executive Director of the South West Learning for Sustainability Coalition, who you might remember from our Learning for Sustainability presentations around ESD 1 and 2 – we often refer to the work that Paul carried out with Prof. Bill Scott at the University of Bath. Paul has asked if you would be able to help out with a piece of research that he is conducting..."

The invitation to 'assist with a forty-five minute interview' was sent to over twenty heads and teachers that fulfilled the following criteria:

- Their school has been working on a school-wide sustainability project for at least two years
- The teacher is known to be involved personally in their school's sustainability work

Beyond this, the interviewees were self-selecting as they all volunteered to assist in the research while other invitees did not.

Positive responses were received from a total of twelve schools: six secondary, five primary and one middle school.

Securing additional interviews

For triangulation purposes (3.2.7) additional interviews were requested with a second member of staff not directly involved with sustainability in the school. Although there were no objections to this in principle, some requests for additional interviewees went unanswered. A particular effort was made to ensure that a second interview was conducted in one school from each of three broad categories. These categories were allocated in response to interviewees' perspectives on their own school's performance vis-à-vis EE/ESD (Table 3.3):

- Successful and continuously improving (four schools)
- Positive but realistic about the challenges (three schools)
- Positive but currently working against the odds in this school (five schools)

Second interviews were secured through 'snowballing' (Patton 1987) where one interviewee opens the trail to the next. The phases of the research are presented in Table 3.1 together with the nature of data gathered, its source and the collection method in each case.

Research Phase	Purpose	Source	Data	Collection method
1	Development of theoretical perspective	Earlier EdD assignments and literature review; abortive attempts to start research in two institutional settings.		
2	Preparation and familiarisation	School support agencies	Background information on schools	Telephone calls and e-mails
		Websites	Background information on schools	Internet search
	Evidence of school activity	Teachers and Heads	Interview transcripts	Semi-structured interviews
		Teachers and school websites	Relevant school policy documents	Interviews and internet search
		School sites	Observational notes	School visits/tours
		Ofsted and school websites	Inspection reports	Internet search
3	Verification	Additional Teachers	Interview transcripts	Semi-structured interviews
		Teachers' questionnaire responses	Dilemma analysis scores	Perspective document

Table 3.1: Data gathered for this research

3.2.3 The principal research instrument: semi-structured question schedule

Given that access to the schools was secured through a trusted third party, the research needed to be as non-disruptive as possible. This was not going to resemble the change laboratory workshop programme initially envisaged, neither was classroom observation likely to be workable at short notice.

A semi-structured interview using a phenomenographic approach (Marton 1981; Webb 1996) allows people to express their concerns and share their perspectives without being overly constrained by the researcher while ensuring that the interview remains within a pre-specified framework. The aim is not to establish whether people are 'correct' but to elucidate the different possible conceptions that people have for a given phenomenon (Marton *op. cit.*). This reflects an interpretative epistemology without denying the realist ontology underpinning this research.

The question schedule

This is designed to guide the interview through each element of the activity system while prompting the interviewee to consider whether they have experienced or can identify any contradictions in their testimony (Appendix VI). An electronic copy of the schedule was sent to each interviewee approximately one week before their interview together with a consent form (Appendix VII) guaranteeing them and their school anonymity. Basic information about the interviewee and their school, i.e. the combined 'subject' of this activity system, plus an introduction to the research itself was covered in the preliminary discussion before any of the set questions. This helped to develop a polite, friendly atmosphere while avoiding a host of small, possibly intrusive-looking, questions appearing on the question schedule.

The schedule itself begins with the goals or 'object' of the interviewee and their institution because this is central to any activity system (Engeström 1987). Given the lack of clarity around what a 'sustainable school might be (1.6.4) it is particularly important to establish the conceptions of the interviewees' on this point.

Thereafter, the questions guide the interviewee around the elements of the activity system with the bulk of the time being spent discussing the tools, or mediating artefacts, and how they are applied. This reflects Wertsch's (1998) assertion that the correct designation or unit of analysis would be "individual-operating-with-mediational-means" (*Ibid*: 26). This is not to say that agent and means are an undifferentiated whole, rather they are part of a system characterised by dynamic tension between the elements. This understanding encourages an analysis of the tension across the system rather than simply looking at individual elements, which the schedule necessarily introduces one at a time.

As the schedule moves from *tools* to *division of labour* to *rules and culture*, the interviewee is led around the activity system in an effort to explain actions in relation to the historical context of which their actions form a part. A good deal of analysis takes place through *progressive focusing* during the interview (Patton 1987); even as interviewees focus on one element to explain an action or situation, it is possible to hold in mind – or retrace later through the transcript – the other elements that play a part in this.

While the different elements of the activity system provide the framework for the initial data analysis (3.2.5 and Chapter 4), one exception is 'community'. Stevenson (2007a) identifies two types of 'discourse communities' of significance to school-based EE/ESD:

> (i) those within the school (teachers, administrators, parents, students)
> (ii) external resource people (e.g. university-based environmental educators, university and government environmental specialists, members of NGOs and local community environmental interest groups)
>
> (*Ibid*: 279)

In an activity system, the first of Stevenson's groups represents 'community', i.e. the community *of* the system rather than the social environment beyond it. Among teachers however, 'community' is commonly understood in terms of the local social milieu in which the school is situated, extending to all the external groups mentioned in Stevenson's second category. Rather than talk at cross-purposes with the interviewees, it was this 'external' community that was discussed during the interviews although at the analysis stage this is recognised as a mediating artefact in terms of the activity system. Matters relating to the 'internal' community are covered by questions covering rules and culture and the division of labour.

Conducting the interviews
With the exception of one telephone interview, data were gathered at each interviewee's school using a digital voice recorder to facilitate subsequent transcription. Notes were also taken during the interview as a safety measure and to record significant points in the discussion; this avoids the danger of overlooking their significance at the data analysis stage. In fact one interview was wiped inexplicably from the voice recorder. The error was discovered after the 65-mile drive back from the interview so no time was wasted in reconstructing a 'transcript' from a combination of notes and fresh memory. This was immediately returned for cross-checking by the interviewee who found no errors and felt it reflected the interview accurately.

In terms of depth of discussion and analysis *during* the interview, the setting appeared to make a difference to the quality of discussion. The telephone interview happened to be the first of the fifteen, so it was also a pilot; this felt distant and the discussion more superficial than might have been the case in a face-to-face interview. The second interview was therefore the first face-to-face meeting; again this felt rather superficial due to a combination of being an early interview and the school itself not prioritising EE/ESD to a great extent.

Subsequent interviews were more engaged although some interviewees, having read the schedule beforehand, appeared to treat the interview as an opportunity to 'sell' their school's achievements and approach. This occurred with three of the male interviewees and one female. Another significant factor on the quality of data is the privacy of the setting. In the two interviews held in public places (a staffroom and a busy classroom), thoughts were interrupted and the concentration of both interviewer and interviewee was affected. Conversely, the two interviews that were held after school were the most open, giving rise to large quantities of rich data.

Transcription
The interviews were transcribed verbatim and returned to interviewees for cross-checking. One or two minor corrections were made and one minor objection was received where an interviewee felt that the 'ums', 'ers' and contracted forms of speech made him 'sound stupid.'

3.2.4 Additional data sources
In preparation for each interview the school's website was reviewed, paying particular attention to mission statements and any reference to environmental or sustainable development-related activity and whether this was carried out through timetabled work or extra-curricular clubs and projects. This helped to guide the subsequent discussion and provided an additional verification tool. A table of notes from the websites is provided under Appendix VIII).

The latest one (and where available, two) Ofsted inspection reports of each school were also reviewed (Appendix IX). This outlines the school's strengths and weaknesses from Ofsted's

perspective and highlights school improvement priorities. Earlier inspection reports, where available, provide a longer-term view on whether the school is improving, declining or maintaining a steady course. Again, this enriches and guides the interview and in some cases, corroborates the interviewee's testimony.

Other documents reviewed include school 'eco codes' and in one case, a whole school sustainability policy, which proved to comprise text from the National Framework for Sustainable Schools.

Where appropriate, and where offered, the researcher was given a tour of the school grounds. This proved particularly valuable, not simply for the activities observed but in deepening an understanding of the points covered in the interview earlier.

Finally, by way of a 'thank you', each interviewee was offered a visit by the researcher to either talk to staff or pupils on an EE/ESD-related topic. The fact that nobody took up this offer suggests (i) that time-tables are already overflowing for both staff and pupils and (ii) the lack of priority shown by Government has impacted negatively on EE/ESD in schools.

3.2.5 Data analysis

Gough and Scott (2000) identify two distinct aspects to qualitative research, each with different implications for data coding. One is:

> "…*emic* in character … concerned with the discovery of meanings attributed by respondents, to see coding as a means to the emergence and interrogation of theory from data" (*Ibid*: 342).

The focus here is on a specific context. Conversely a focus on 'generalisable knowledge claims' is likely to be:

> *"…etic* in nature, to concern itself with the interpretation and presentation of data in ways likely to be found meaningful by audiences outside the immediate research context, to involve the marshalling of data to this end using techniques of code-and-retrieve" (*Ibid*: 342).

This research iterates between both approaches. Although the *change laboratory* approach had to be abandoned, the activity system framework adheres to the question schedule rather like an archaeological relic of the original intention. However, data are also analysed in a way that allows unforeseen connections and outcomes to emerge. The research findings can only claim to be relevant to *these* schools at *this* time; however, they also reveal patterns of activity that can usefully inform other schools, policy-makers and researchers of EE/ESD.

Data analysis technique

The use of NVivo, computer-assisted qualitative data analysis software (CAQDAS) was investigated; this facilitates analysis of documents, surveys, audio files, video and pictures (NVivo 2011).

Using CAQDAS in data analysis has the potential to add rigour to qualitative research (Richards & Richards, 1991) and can enhance research quality (Wong, 2008). Conversely it has been argued that the software may guide researchers in a particular direction, thus challenging the validity of research findings (Seidel, 1991). Seidel argues that using CAQDAS distances the researcher from the data and encourages quantitative analysis of qualitative data. The ease with which a quantitative analysis of words can be conducted may threaten to divert attention away from the sense and meaning of what people are saying.

At the time of conducting this research NVivo was only available on a Windows platform. As a Mac user, this would require the researcher to change computer platform, an awkward although not insurmountable hurdle[3]. Had the data for this research been more multi-media in nature, NVivo would have been invaluable, however the bulk of the data comprises transcripts and the physical handling of these provided a welcome relief from time spent at a computer screen.

Hard copies of the transcripts were therefore used. After repeated reading and marking of text with codes, photocopies of coded transcripts were cut up and related data-units were put into coded envelopes, a suggestion of Bogdan and Bicklen (1982). These envelopes correspond to NVivo 'nodes folders'. In this way the relevant ideas on each theme are physically brought together for review and, if necessary, re-allocation. A potential drawback is not being able to assign the *same* data unit to different codes or 'nodes' without making multiple copies of the data. This was overcome by writing cross-reference notes on the data units. Searching for words and phrases across the transcripts was achieved using the Mac search function and considerable 'screen time' was spent analysing the school inspection reports and websites.

Coding and clustering

As stated above, data units were coded and assigned to thematic sections reflecting the activity system elements. As Miles and Huberman (1984) advise, codes should be part of a coherent governing structure rather than allowing a "ragbag that usually induces in turn shapeless, purely opportunistic analysis" (*ibid.* p.57).

This could have been achieved using NVivo software but the task of physically locating and cutting out each data unit using a scalpel and steel rule afforded the opportunity to review the context of the data within the transcript, coming at it from a fresh angle. This led to further refinement of the codes plus several adjustments in the actual text selected and, in one case, correcting an important oversight where a teacher's purpose for doing sustainability in school was buried within a neighbouring section of the transcript.

Initially 82 codes were identified. After close re-reading of the interview data and some refinement, a total of 69 codes emerged (Appendix X) clustered under elements of the activity system:

- Objects and Outcomes (13)
- Tools/mediating artefacts (22)
- Community – later reassigned as 'mediating artefacts' (9)
- Division of labour (9)
- Rules and culture (14)
- Subject (1)
- Other (1).

The one code that did not apply to the activity system framework was, *impact of interview process on interviewees' practice*, which relates directly to the methodology itself, which in turn relates to Activity Theory (3.5).

Primary/Secondary Schools

Initially the data units from secondary schools were clipped together in each envelope in order to differentiate them from the primary school data. A review of the differences within this small sample proved inconclusive and methodologically, this seemed a dangerous course. As the analysis proceeded, data from primary and secondary schools appeared to become indistinguishable so no further differentiation was attempted.

[3] *NVivo10* for Mac became available late in 2013, some months after this data analysis was conducted

The resource document
All the coded data units were also assembled electronically into a 72-page, 34,200 word document. This could be readily converted into a descriptive report but that would not address the research question; more analysis was required to get 'underneath' the interviewees' testimony. Olson (1992) differentiates between *instrumental* (face value) interpretations of actions and *expressive* (possibly subliminal) messages. This distinction proved helpful in specific cases. Richards (2005) suggests three types of coding: descriptive, topic and analytical and it was clear that all three types were being lumped together under the broad (descriptive) headings.

The activity system elements appeared to have outlived their usefulness at this point. For example, data initially coded *1d. Definition of a sustainable school* was crammed into an over-filled envelope under the 'Object' section. This required what Richards (2005) terms 'coding on', i.e. re-visiting the original coded material as the category is felt to be too coarse or too fine. In this case the code was too general or coarse. These data units were re-sorted together with other coded units into *descriptions*, *indicators* and *outcomes* of a sustainable school (Table 4.1).

Some content analysis (Winter 1982) was attempted, again using the search function on Mac rather than NVivo. Winter does not commend this approach warning that:

> "…it tends to break down the structured subtlety of the individual scripts while only generating the most plaititudinous overall interpretation. Content analysis then is only appropriate for a relatively large number of closely structured responses" (*Ibid*:165).

This approach was attempted where transcripts highlighted the positive emotions that interviewees mentioned in relation to working on EE/ESD. The attempt was soon abandoned due to a lack of pertinent data.

An additional operation analysed the data for contradictions (Engeström 1987); this is described below as it became central to the third phase of the research.

3.2.6 Phase 3: Dilemma analysis
While contradictions and dilemmas have distinctive qualities (1.6.5) there is enough overlap between the concepts to justify the use of Winter's (1982) dilemma analysis method as an instrument within activity theory research. For Engeström (1987) contradictions are not just inevitable features of activity, they are the means by which development takes place. Furthermore, the sociological conception of 'contradiction' underpins Winter's (1982) dilemma analysis method. For Winter, all social organisations at all levels are "constellations of conflicts of interest" (*Ibid*: 168) and are therefore continually beset by dilemmas.

In describing the value of dilemma analysis, Winter concludes that, from a limited amount of qualitative data, it can be used to "generate a summary interpretation which is plausible and thus of practical value in the complex context from which it was derived" (*Ibid*:173).

In his study Winter compiled a Perspective Document comprising dilemmatic statements derived from qualitative interview data using the following procedure (paraphrased):

a) Formulating dilemmas at the same level of abstraction as they were presented by the respondent
b) Choosing as a starting point the most elaborated version of each of the identified dilemmas
c) Balancing each dilemma in a non-controversial manner with the potentially opposing point of view

d) Building up a perspective for each category of respondent by adding together the dilemmas formulated with the data from each group.

Winter uses this analysis to prepare four perspective documents, reflecting the categories of research participants (teachers, student teachers, their supervisors and pupils) to be 'checked back' by all but the pupils.

For this thesis, a slightly different procedure is followed:

a) Analysing full transcripts of semi-structured interviews, coding them for emerging themes *and* potential dilemmas, particularly looking for where an interviewee appears to contradict themselves during the interview
b) Collating a list of dilemmas and where repetition occurs, combining the ideas so that each respondent's views are used in a composite formulation
c) As far as possible, matching each situation with an opposing view *drawn from the data* (from the same respondent in some but not all cases)
d) Developing a simple questionnaire (the Perspective Document; Appendix XI) for respondents to review and indicate their level of agreement with the statements.

The responses to the Perspective Document thus highlight areas where genuine contradictions may exist. With the caveat that this feedback has been drawn from a modest sample, those responding are the same individuals who provided the data so the exercise has value as a means of verification (3.2.7).

An initial list of 24 pairs of statements (dilemmas) appeared to be rather too long so nine pairs were removed using the following justifications:

- A reported view – not that of the interviewee (3 statements)
- Similar to another statement (10 statements)
- Issue not specific to a 'sustainable school' (3 statements)
- Unclear due to multiple ideas (1)
- Too specific – applies to very small schools only (1).

This resulted in a Perspective Document comprising 15 pairs of statements numbered 1a/1b to 15a/15b. The juxtaposition of opposing statements appeared to be offering respondents an either-or choice; this did not appear as 'non-controversial' as intended.

To overcome this, the (a) statements from each opposing pair were presented as statements 1-15 and the corresponding (b) statements were numbered 16-30. The resulting document does not offer a list of 'opposites' although it remains easy to re-assemble on an Excel spread sheet for recording purposes (Appendix XII).

Respondents were asked to indicate their level of agreement with each statement by entering a number between 1 and 5 from a Likert-type scale: 1 = Agree Strongly; 2 = Agree; 3 = Undecided; 4 = Disagree; 5 = Disagree strongly.

By numbering each Perspective Document individually it was possible to track the replies readily as they were returned without anyone having to write their name on the document.

Eliciting responses from busy teachers and headteachers was not straightforward and several e-mail messages had to be sent in some cases. Eventually eleven of the original fifteen interviewees (73%) responded to the Perspective Document.

Using these eleven responses the dilemmas were ranked in order of the strength of confirmation by respondents. Scoring followed the approach used by Gough (1999). A response of 'Agree Strongly' or 'Agree' scored 1; 'Undecided' scored 0; 'Disagree' and

‘Disagree strongly’ scored -1. The highest possible score for any statement was eleven thus the highest score for a dilemma would be 22.

By scoring in this way, a clear banding of results emerged (actual scores in brackets):

Level One (score 21-20) represents those pairs of statements that met with near universal agreement; as such they have the highest potential for confronting schools with a dilemma on the most effective approach to sustainability in that area.

Level Two (score 19-18) are only a little behind the first level suggesting that this could still create conflicts if not a serious dilemma for teachers.

Level Three (score 17-16) are still significant but possibly not as strong a dilemma.

Level Four (score 15-13) suggests a weak contradiction.

Level Five (score 8-6) where there is no clear agreement in any direction.

Level Six (score 2) where there is almost uniform disagreement, which suggests that this may yet be a dilemma for some.

These rankings were compared with Winter’s categories of *ambiguities*, *judgements* and *problems* (1.6.5). The ‘problems’ are among the highest scoring dilemmas; the ‘ambiguities’ are among the medium and weak dilemmas; ‘judgments’ appear throughout the rankings.

Winter does not discuss systemic levels of dilemma so the rankings were compared with Engeström’s four levels of contradiction (3.1.3). All the ‘problems’ and ‘judgments’ appeared among the *primary* and *secondary* contradictions. The ‘ambiguities’ all appeared to be *tertiary* contradictions (see Table under Appendix XIII).

3.2.7 ‘Trustworthiness’

The reliability (or reproducibility) and validity (proximity to reality) of qualitative research (Guba 1981) cannot be expressed as a correlation coefficient as in a quantitative inquiry. One of the best guarantees of a reliable result in the scientific method is sample size; with qualitative research the data must speak for itself. Internal validity is based on the information richness of the sample, not the sample size while the findings are not aimed at achieving a replicable formula thus reproducibility is not a key concern.

The findings of qualitative research can be cross-checked for reliability; this is achieved through triangulation which variously involves assessing and comparing findings from combinations (usually three) of the following:

- methods
- types of items of sets of conditions
- points in a range of distribution
- individuals or groups of analysts
- places
- times
- disciplines
- investigators or inquirers.

(Chambers 1994)

To some extent, all of these aspects are achieved in this research with the exception of using another investigator.

Pretty (1993) uses Guba's term 'trustworthiness' to sum up the way in which rigour is applied in participatory research, highlighting *credibility*, *transferability*, *dependability* and *confirmability* as alternative criteria of trustworthiness. These criteria are enhanced by triangulation, parallel observations and cross-checking by participants and peers.

Ashworth (1993) is sceptical about participant cross-checking given the interpersonal nature of the phenomenographic research process. While it must be accepted that "the usual contingencies of self-presentation are in force" (*Ibid*: 14) cross-checking remains important due to ethical considerations (3.4.3).

The criterion of transferability is addressed through contextual descriptions and visualisations. These criteria have been taken as the principles by which the trustworthiness of this research should be assessed (Table 3.2).

Trustworthiness (Guba 1981)		**Method Used to Achieve Trustworthiness**
Aspect	**Criterion**	
Truth Value	Credibility	Rapport built up through credentials of researcher and knowledge of subject's context through pre-reading; parallel surveys in twelve schools with respondents from a diversity of personal, professional and disciplinary backgrounds; interviewees cross-checking interview transcripts
Applicability	Transferability	Thick description of context provided (3.3 and Appendices II & III)
Consistency	Dependability	Triangulation through multiple interviews; second interviews in some cases; parallel investigations in similar settings; feedback on Perspective Document
Neutrality	Confirmability	Triangulation as above

Table 3.2: Components of this research that enhanced trustworthiness

As discussed above (3.2.2) additional interviews were secured at one school in each of the EE/ESD 'performance categories' based on the initial interviewees' views on the school's accomplishments in relation to sustainability (Table 3.3).

School	First interviewee's view	Second interviewee's view
Park Primary	Making good progress	Making good progress
Kings Secondary	Making good progress	
New Primary	Making good progress	
Manor Primary	Making good progress	
Valley Secondary	Positive but realistic	Working against the odds
Royal Secondary	Positive but realistic	
Thatchwell Primary	Positive but realistic	
Newhouse Secondary	Working against the odds	Working against the odds
Farm Secondary	Working against the odds	
Broadreach Secondary	Working against the odds	
Abbey Middle	Working against the odds	
Strawberry Primary	Working against the odds	

Table 3.3 Location and impressions gained from the second interviews

In two cases (Park Primary and Newhouse Secondary) the second interview confirmed the views of the initial interviewee; this was not the case at Valley Secondary where the second interview suggested that less was being achieved in EE/ESD than first thought.

3.3 The Sample

The resulting sample is fifteen interviewees in twelve schools. This is at the low end of the range of 15–20 that is recommended for theoretical sampling (McNicholl & Blake 2013) but large enough to give a good cross-section of school type, size and setting and to generate almost 120,000 words of qualitative data. Richards advises that qualitative research is designed to, "…discover meaning through fine attention to content … These techniques take time and do not need large samples" (Richards 2005: 20).

The gender, ethnic background and age of the sample are compared with national statistics for the teaching workforce (DfE 2012) in Table 3.2. This shows that the sample is reasonably representative of the national population of qualified teachers in terms of gender albeit with a slightly higher proportion of males. All the interviewees are from white ethnic groups and the sample is slightly older than the national average although this is likely to be representative of the teaching workforce in western counties of England with a number of sample schools being in rural settings.

Attribute	National Teaching Workforce	Sample
Female:male ratio	73:27	66:33
% white ethnic groups	94%	100%
% under 30	23%	20%
% over 50	23%	33%

Table 3.4: Attributes of research sample compared with national statistics

Further details of the sample are given in Table 3.3 including the schools' status in relation to Eco-Schools awards. The schools are listed in the order in which they were first visited.

Brief pen portraits of each of the twelve schools are provided under Appendix II and the interviewees under Appendix III.

All schools and individuals have been assigned pseudonyms to protect their anonymity.

The sample comprises a wide spread of subject specialisms from Science and Geography to Mathematics and Citizenship.

School (Pseudonym)	Phase	Setting (Eco-Schools Flag)	No. on Role	Ofsted Score (Previous)	Teacher (Pseudonym)	Gen -der	Role	Experience
Valley	11-18	Suburban – Academy	1,400	3(1)	**Sarah**	F	Science	<10
					Amy	F	Design & Tech	>15
Broadreach	11-18	Grammar - Language/Science Coll	790	1 (1)	**Barbara**	F	PSHE/Citizenship	>15
Royal	11-16	Rural – Arts Coll - Academy	450	3 (3)	**Michael**	M	Science/SLT	>25
Farm	11-18	Leafy suburban – Academy (Green Flag)	1,280	1 (1)	**Bob**	M	Geography	4
Newhouse	11-16	Outer city housing estate – Arts Coll. (Silver Flag)	730	4 (3)	**Louise**	F	Science	2
					Melanie	F	Design & Tech	2
Kings	11-18	Suburban – Science Coll (Green Flag)	1,250	2	**Cheryl**	F	English	6
Manor	4-11	Urban (Green Flag)	580	2 (3)	**Philip**	M	Head	>25
Thatchwell	4-10	Rural (Green Flag)	180	2 (2)	**Heather**	F	Head	>10
Park	4-11	Suburban (Green Flag)	400	2 (3)	**David**	M	KS2 Assist. Head	20
					Ken	M	Maths lead	>10
Abbey	9-12	Rural (Green Flag)	280	2	**Julie**	F	Sustainability lead	>10
New	3-9	Urban (Green Flag)	370	2	**Ellen**	F	Sustainability lead	<10
Strawhill	4-9	Rural (Green Flag)	45	2	**Rebecca**	F	Geography	>10

Table 3.5: Details of the interviewees and sample schools

3.4 Ethical Considerations

3.4.1 An ethical framework

This section provides an opportunity to make explicit the ethical considerations underpinning this research and to highlight their practical implications. Ethical considerations are not confined to a subsection of the methodology chapter; they pervade and guide research from start to finish. Beyond ensuring that no harm is done and no laws broken, ethics are fundamental to the *quality* of research, as Sosa suggests:

> "…an intellectual virtue is a quality bound to help maximise one's surplus of truth over error" (Sosa 1985 cited in Bridges 2003).

Bridges (2003) insists that academic virtues, such as open-mindedness, discernment, discretion and intellectual impartiality, are qualities that ensure that 'mere information and the apparatus of enquiry' are transformed into 'something closer to wisdom' (*Ibid*).

The BERA (2004) ethical guidelines make it clear that there are no hard and fast principles that can be followed in a timeless fashion. This echoes Pring (2001) who insists that when making ethical decisions, we cannot rely simply on the application of principles:

> "Different principles can be evoked. But there is *judgement* required in deciding upon the overriding principle and in deciding what element in one's practice relates to what principle" (*Ibid*: 411 author's italics).

Pring argues for the inculcation of *dispositions* rather than moral imperatives for it is these that will determine the way in which we act as researchers and he calls for virtuous research communities to foster virtuous researchers. This is not far removed from the subject of this research enquiry: writers such as Sterling (2001) call for school communities to adopt a 'virtuous' ethos in relation to their practice so that they take responsibility for developing their learners' capacity to change the world as well as succeed in it.

A further overlap with the research subject occurs in Pring's discussion of dilemmas faced by researchers. Just as teachers may or may not choose to confront contradictions in their professional practice, so researchers may respond to conflicts of principle in educational research in one of four ways:

1. Don't recognise the conflict – operate in a moral vacuum
2. Decide your position and stick to the principles that favour that position
3. Look (in vain) for higher level principles to resolve the conflict
4. Recognise that there is no solution other than through deliberation upon the different principles in play within a given context

(Paraphrased from Pring, 2001: 414)

Clearly Pring favours the fourth option and it is with a propensity for constant deliberation that the three inter-related principles, or three 'R's of *rigour*, *responsibility* and *respect* (University of Bath 2013) have been approached throughout this research.

3.4.2 Rigour

This is probably the most straightforward aspect of the three 'R's as it is concerned with the 'apparatus of enquiry' (Bridges *op. cit.*) and adherence to established good practice. The research plan (Table 3.1) and criteria for 'trustworthiness' (Table 3.2) give a transparent overview of how this research has been constructed and the measures taken to enhance its internal and external validity. Care has been taken to acknowledge and reference all sources so that no charge of plagiarism can be levelled at any point of the thesis.

The issue of bias is handled by outlining the background of the researcher and highlighting their own contribution to EE/ESD and their interest in examining this further (1.2.1). As Griffiths (1998) informs us:

> "Bias comes not from having ethical and political positions – this is inevitable – but from not acknowledging them" (Griffiths, 1998: 133).

Although the researcher's ESD credentials were emphasised as part of a trust-building strategy with interviewees (3.2.2) care was taken to avoid colouring the interviews with 'informed' opinion. That said, one example of unacknowledged bias was noticed during a casual re-reading of data extracts *after* conducting the data analysis:

Rebecca: *...before you can get into their, their, their real opinions on it, otherwise you're indoctrinating, and you're not educating.*

Interviewer: *Yes.*

Rebecca: *And I'm very, I'm an educationalist, I'm, here to educate.*

Interviewer: *That's great.*

The brevity and enthusiasm of the interviewer's response belies the fact that Rebecca is saying something that is of particular interest. The response 'Great' certainly does not recur elsewhere in the data. The singularity of this example suggests that such subliminal bias is not a distorting factor across this research.

3.4.3 Responsibility

Reporting and communicating findings honestly and fairly is central to this aspect. This requires alertness, listening for the meaning behind subjects' utterances so it can be reported faithfully. For this reason cross-checking of transcripts by interviewees is critical (3.2.7). In some cases multiple reminders had to be sent to ensure that this was done. No data would be used without cross-checking owing to this ethical consideration; an insistence that ensured all transcripts were cross-checked eventually.

Particular attention was paid to interviewees saying things that they would not say in front of their managers. This occurred frequently and led to a 'tightening' of confidentiality (3.4.4).

In ensuring that the meanings – and findings – are shared among the participants in educational research, Pring (*op. cit.*) asks:

> "…how far can we understand what is going on in classrooms without respecting the understanding of the main agents within those classrooms?" (*Ibid*: 410)

An Activity Theory approach would normally involve a high degree of participation by research subjects, particularly in Developmental Work Research (3.1.3). Knowledge and understanding would be co-created rather than cross-checked; this however was not possible. Indeed, the urgency with which the interviewees were recruited meant that it was unrealistic for them to become engaged enough to gain a view of data comprising thousands of words.

Eleven of the fifteen subjects did respond to the Perspective Document (3.2.6) that represented a distillation of some of the findings derived from the data; this was deemed to be as much response as it would be reasonable to expect. There is a need to balance opportunity for comment with respect for the subject's time and workload. It proved difficult enough to

gain permission to use the data gathered in the interviews *and* a response to the perspective Document; to then expect a busy teacher or headteacher to review data and draw their own view of it would be unreasonable and almost certainly unsuccessful as a strategy in this case.

With hindsight, the subjects might have been invited to engage in a programme of action research in which they would gather data of direct relevance to their professional activity plus the possibility of credit towards an academic qualification. Even this may not have been effective at a time of waning political significance for EE/ESD. After all, the researcher's offer of a free workshop in this area was welcomed but not taken up at all.

3.4.4 Respect

This aspect embraces issues of honesty and the need to ensure that no harm is caused and no laws or rules are contravened. Above all, barring exceptional circumstances, research should not be covert in any way. This does not affect this research because the subject matter is not contentious, which is itself a reflection of the non-radical nature of EE/ESD taking place. However, as stated above, interviewees displayed a high degree of trust in the researcher and were emboldened by the promise of confidentiality. This had implications for the amount of contextual detail that could be shared within the thesis.

Consent

In the first instance, general codes of conduct require that participant involvement is secured openly with full knowledge of *what* will happen, *why* the research is being conducted and *how* any data or findings will be used. This was achieved through the invitation message and subsequent correspondence which was in turn followed up with a printed consent form that laid out the circumstances of this research (Appendix VII). Each interviewee (including the teacher who gave a telephone interview) signed this form for the researcher's records and retained a hard copy for themselves.

Confidentiality

Bridges (2003) reminds us that Stenhouse portrays research as 'systematic and sustained enquiry made public.' This immediately creates a tension between the principle of research revealing hidden truths and that of respecting the privacy or confidentiality of the research subjects.

In the case of a doctoral thesis, considerations of 'public interest' and claims of 'a right to know' do not necessarily apply as the readership is likely to be small. Even so, the frankness of interviewees means that Ofsted inspection reports, school websites and even the organisations that assisted in recruiting the interviewees are not named in this document. The time lag between data collection and submission of this thesis has further assisted in distancing the final document from the research subjects.

There is a further argument that subjects who have given up their time to help with research should, where possible, have their contribution recognised through its publication. This may have a bearing on any published papers that are based on this thesis. In this event, extra care will be required to ensure that nothing can suggest the location of the schools.

3.5 Impact of the research on interviewees

A final point to note in relation to the methodology is the way that the semi-structured interviews do not simply extract information but that ideas also flow *to* the subjects. The chief mechanism for this is the act of asking questions. A number of responses suggest that by asking about an activity, it has raised awareness of new possibilities. For example, rather than saying 'no' a reply may typically be:

"No we don't, and that's an idea we could do that, yeah" (Heather).

Asked about integrating EE/ESD into assessment, Philip a primary headteacher feels this is an idea to pursue:

> "*I don't think so… I'm going to make some notes on this, because actually that's a really good idea ... inevitably when you have these conversations ... it makes me think we could do so much more and it's only because of having external visitors that you get that opportunity"* (Philip).

Even a question schedule sent ahead of the interview has the potential to provoke deeper thinking. Here Rebecca is reading the printed question back to the interviewer:

Rebecca:	*… 'does the school have any declared aims on sustainability?'*
Interviewer:	*Yes, hmm.*
Rebecca:	*No, in actual fact, we don't, other than 'to get a Green Flag' so, that really made me think.*
Interviewer:	*What about the school itself, in terms of a goal? You've got the goal of 'achieving a Green Flag'...*
Rebecca:	*Yes, but we haven't got that* [pointing to question re. aims] *so, now, after doing this, I'm going to go and make sure that that's written into our action plan.*

Although a true Activity Theory approach was not possible in this research, each interview represents an intervention and this has, even if small scale, some developmental impact.

In exploring the contradictions confronting teachers working in EE/ESD, this research has generated data comprising fifteen transcripts totalling 120,000 words supported by a review of twelve websites, twenty Ofsted inspection reports and notes on school visits. The analysis of this data, guided by an activity system framework, is reported in detail in the next chapter.

Chapter Four: Analysis

This analysis is presented in three parts. Firstly, the data relating to the elements of the activity system is analysed. Addressing the system as a whole means that different aspects are addressed *inter alia* while data on specific elements are analysed, hence the later sub-sections in 4.1 become progressively shorter. Contradictions and dilemmas that were identified in the first cycle of analysis and covered by the perspective document are highlighted in the relevant sub-section. These are categorised as *primary* and *secondary* contradictions (Engeström 1987). By definition, *tertiary* and *quarternary* contradictions do not exist within an activity system hence these are discussed in separate sections.

4.1 Dilemmas within activity system elements

4.1.1 The activity system object

As stated in Chapter Three, the object is taken to be the (sustainable) school and interviewees shared their definition and vision of this. Analysis involved disentangling the data into three related strands: *descriptions*, *indicators* and *outcomes* (Table 4.1).

From this a continuum emerges with a narrow focus on energy at one end and a whole-institutional approach at the other. Reading across the table, links can be drawn between the focus of interviewees' definitions and their suggested indicators of success and the outcomes they seek, although these are not necessarily responses from the same individuals.

The pattern that emerges also maps loosely onto the 'three Cs' of the National Framework for Sustainable Schools (NFSS), suggesting a continuum of difficulty from campus 'greening' through curriculum development to forging community relationships beyond the school.

While Table 4.1 provides a continuum towards a more holistic vision, it is at odds with existing descriptors for ranking sustainable schools (Webster 2004; Webster & Johnson 2008; Gayford 2009; Scott 2010). This is because it does not of necessity grow more 'eco-friendly', rather the concept of sustainability increasingly underpins the school's activity. New Primary, for example, has a strong reputation for embedding EE/ESD despite some poor environmental aspects of its building that do not commend it as a beacon of sustainability.

Interviewees do not identify any contradictions or dilemmas themselves. The primary schools espouse a 'caring ethos' and 'a holistic approach' is often mentioned in terms of a coherent school culture. By aligning their view of a sustainable school with caring and holism, interviewees escape any obvious contradictions with their school's practice and ethos.

The award of an Eco-Schools Green Flag appears at this 'lighter' end of the table reflecting data that suggests Green Flags can be gained routinely once the initial award is achieved.

In the central section of the table, instrumental goals around values, attitudes and behaviour can contradict the narrowing purposes of education reform (4.2).

Equally troublesome in this section is the gap between those who align EE/ESD with developing 'children that question' (Ellen) or 'developing thinking skills' (Cheryl) and those who aspire to 'set habits' (Sarah) so that students do things 'automatically'. This aspect is featured in the dilemma analysis (4.1.2).

Lower down the table where school improvement and student learning is emphasised, there are more challenging actions, such as forging school-community links. As one teacher notes,

when wider social concerns are introduced to students, "…*actually they produce better work*" (Amy) so again, no contradiction with the school's core purpose is reported.

Two interviewees emphasise the value of sustainability for including pupils from diverse backgrounds but this is not seen as a core purpose of EE/ESD and the dilemma analysis (4.1.2) downplays any contradiction.

Focus	**Describing the 'object'** *A sustainable school…*	**Indicators of success** *We hope to see…*	**Outcomes** *We engage in EE/ESD in order to…*	**Link with NFSS**
Efficiency savings *(The estate)*	Saves money by being cost-effective	Money saved/cost-efficiencies	Save money Reduce energy consumption	**Mainly 'Campus'**
Public recognition *(Reputation)*		An award e.g. Green Flag	Achieve an award (and market the school)	
Modified behaviours *(Staff & learners)*	Is environment-friendly in its operation	Adoption of pro-environmental behaviours	Encourage pro-environmental 'habits'	
Increased awareness *(Staff & learners)*		Staff recognise they are doing SD Self-sustaining SD activities	Raise awareness about the environment	**'Curriculum' dominant**
Values *(Learners)*	Has a caring ethos (towards the environment among other things)	SD embedded in the curriculum Spontaneous student-led action	Instil moral values e.g. caring and sharing (including *for* the environment)	
Wider school purposes *(Learners)*	Is holistic in its approach	Whole school involvement in SD	Connect young people with their wider environment	**'Community' only present here**
(Learners)	Reaches the wider community	SD underpinning the curriculum	Promote citizenship Enhance social inclusion	
(Learners)	Communicates freely – especially across staff	An inter-connected whole – embedded in everything the school does	Enrich learning "Pupils that think"	
(Whole school)	Is a learning organisation		School improvement	

Table 4.1: Purposes, description and indicators of a sustainable school

There are inevitably gaps in the range of responses. No school comes close to being 'eco-restorative' (Webster & Johnson 2008) and in contrast to current EE/ESD discourse (UNECE 2012), 'transformation' of the system or of individuals is neither part of the language nor,

apparently, the aspiration in these schools. Interviewees who mention the goal of being carbon neutral quickly dismiss this suggestion as 'unrealistic' under current circumstances.

Beyond the statement "*better equipped to be worthy citizens…*" there is no overt political dimension and only two teachers describe outcomes that relate to action competence (Jensen & Schnack 1997); one example appears under 'curriculum' (4.1.4) while Ken's version belies a neoliberal slant:

> *"… they'll have … more of an idea about how they can deal with that as a person independently and the things that they can do which will make a difference"* (Ken).

While a culture of care is espoused, aspirations are individualised. The learner is expected to act 'as a person', 'independently' rather than in concert with others. This is telling in light of earlier references to neoliberalism (1.6.7). If teachers like Ken do not sense a contradiction between EE/ESD and their school's activity, it may be because they have adopted the values of society uncritically and absorbed these into their own conception of sustainability.

From this analysis a number of contradictory statements can be identified; they are listed below with the strength of the dilemma as indicated by respondents' scores given in brackets (Level 1) = strongest – (Level 6) = weakest. The contradiction numbers (C1, etc.) correspond to their order in the summary table (Appendix XIII).

4.1.2 Primary object-based contradictions in the perspective document

The five dilemmas covered in this section are all 'primary contradictions' (Engeström 1997) as they occur within a single element of the activity system. The first two pairs of statements cover similar ground and are dealt with together here:

C1. Second nature versus questing for change (Level 2)

> Sustainability should be inbuilt so it's something that you do automatically, subconsciously, without thinking
> *versus*
> The aim is to develop young people that question, that want to change things; our young people should have their own opinion

C2. Habit-forming versus critical thinking (Level 2)

> Sustainability is about 'mainstreaming' behaviour – forming habits so that it's part and parcel of what the school does
> *versus*
> Thinking skills are the essential elements of learning for sustainability like independent inquiry, creative thinking, problem solving and working collaboratively

The first pair of statements pits subconscious behaviour against opinion forming whereas the second contrasts habit-forming against a range of thinking skills that may be taught in school.

Respondents registered strong agreement with all four statements highlighting the problematic nature of this contradiction. For them, EE/ESD is about developing habitual behaviours *and* encouraging pupils to question critically and think beyond orthodoxy.

In terms of Winter's (1982) categories of dilemma these rank as *problems* because the validity of possible courses of action can be 'undermined', in this case by the conflicting nature of the goals themselves. Such conflicts are even played out *within* individuals such as the eco co-ordinator at Strawhill Primary who at one point in her interview feels that her role of promoting sustainability is at odds with her intrinsic educational values:

"I'm an educationalist, I'm here to educate and that will be the most powerful outcome" (Rebecca).

Yet elsewhere in this interview Rebecca is adamant that EE/ESD should be taken more seriously in her school. Doing the 'right thing' *and* thinking critically appear to conflict but as suggested by the concept of ESD 1 and 2 (Vare & Scott 2007), Rebecca appears to resolve the conflict in her day-to-day actions, encouraging a range of positive behaviours and attitudes while remaining true to her wider educational principles. Note the contradiction is *resolved* rather than *solved* (Clark 1999) by the teacher's ability to manage this tension.

C3. Focus on energy versus holistic view (Level 4)

Energy is the most important component of sustainability; a sustainable school should aim to be as carbon neutral as possible
versus
It's important to look at the bigger picture; as a school we should aim for a holistic view of sustainability

There was not a strong dilemma here, respondents were less likely to agree with the energy focus, even those involved in the Energy Project. This is clearly a case for judgement rather than a true dilemma.

C4. Focus on costs versus focus on impact on young people (Level 6)

Reducing costs, particularly energy costs, is the major impetus for being a sustainable school
versus
We've got to educate young people to be the ones who change things to make society more sustainable

Again, the responses did not register this as a strong dilemma. Saving energy (and money) is clearly important to schools but does not appear to be confused with sustainability *per se*.

Sarah at Valley Secondary feels that her school is not serious about sustainability but is concerned to save funds for other priorities; for this reason she sees underfunding as an advantage. At Royal Secondary, Michael claims that while the students are keen on sustainability, with the headteacher and finance team *"it's about saving money."*

This suggests that a lack of resources need not be a barrier to acting more sustainably. If the school economises while remaining cognisant of the wider goal, then a coherent ethos may be attainable and the dilemma analysis suggests that this is the case. Where two 'markets' (Michael's term) are being 'sold' different goals, coherence can only be sustained while both goals overlap. This is a concern because if the decision-makers' goal is saving money, sustainability is likely to lose out.

C5. Universality versus strategy for inclusion (Level 6)

Sustainability should be spread equally throughout the school, involving all students
versus
The main value of sustainability is as a vehicle for attracting young people who might otherwise be excluded or disaffected

Social inclusion is cited in the data as a valuable outcome of sustainability. At Thatchwell Primary, for example, Heather describes how EE/ESD has improved the attendance of

children from the Traveller community including one boy who, after planting in the school garden, started attending regularly to check on his plant.

While sustainability is thus seen as supporting social inclusion, respondents do not see this as the primary goal of a sustainable school.

At Newhouse Secondary, Louise, who is taking on co-ordination of special educational needs in the school, has overcome potential contradictions by linking sustainability and inclusion as related and underpinning principles.

4.1.3 Tools and mediating artefacts

This aspect of the activity system produced the largest number of codes (Appendix X) reflecting the idea that 'production predominates' in an activity system (2.3.3).

This section is sub-divided into the NFSS categories of Campus, Curriculum and Community.

Campus

Interviewees argue in favour of setting good examples, 'showing rather than telling'. This is clearly important to Sarah at Valley Secondary:

> *In my old school … it was easier because we had a new building – it had solar panels, rainwater harvesting, etc. – we used that as a teaching resource..."*

And later:

> *"It would be fantastic if we could have a very vocal in-your-face way of saying 'we can do this', such as those solar mobile phone chargers. Things that are shiny and nice that buy people into it – solar panels, wind turbines…"* (Sarah).

The Eco Co-ordinator at New Primary is wary of such artefacts obscuring the school's sense of purpose:

> *"We don't have solar panels or a wind turbine – the bling – but you don't need that because it's an approach"* (Ellen).

Similarly, while Bob argues in favour of practical demonstrations at Farm Secondary, he feels that the 'whole school' supporting sustainability would be a more significant breakthrough.

The Eco-Schools award scheme focuses on the physical aspects of sustainability; for Philip at Manor Primary this provides 'structure and clarity' in an area that is 'complex and uncertain.' The highest award (Green Flag) is acknowledged as a useful marketing device although this can raise internal conflicts as this headteacher acknowledges:

> *"…it sells our school as well, from a marketing point of view, which is part of my role to get kids in here, … That's unfortunately something I'm having to do; trained as a teacher and now just being a marketing manager … I'm not sure I like it"* (Heather).

The marketing function is more important to some schools than others; nine of the twelve sample schools follow the Eco-School scheme but only six make reference to this on their website's homepage although it does appear elsewhere on their websites (Appendix VIII).

The Eco Coordinator at Strawhill Primary feels the headteacher values the award primarily for promotional reasons. She senses a contradiction between the accolade of arrival conferred

by a Green Flag and the lack of support from colleagues. She suspects the potential *loss* of the award could trigger positive action:

> *"I've got to the point where I'm thinking, we have to progress and until we do, I'm not willing, I want us to NOT have that Green Flag flying there"* (Rebecca).

This illustrates the danger of restricting aspirations to meeting award criteria rather than seeking meaningful change. It also raises the prospect of such a contradiction becoming more widespread if 'sustainable schools' actually did become measurable and statutory because many schools would simply game the system. Yet Rebecca is doing something else here; she is using the neoliberal logic of marketization to focus attention on her own EE/ESD goals.

Curriculum
This covers extra-curricular activities within the school as well as pedagogy and lesson content. While primary schools link subjects through thematic projects or 'learning journeys', secondary teachers express concern about a 'disjointed' curriculum. Three different approaches are discussed in section 4.1.4

No interviewees claim to have changed their pedagogic practices in teaching EE/ESD although the data includes examples of innovation. *Forest Schools* are present in all of the primary schools visited although, like Eco-Schools, there is a danger that this framework can become a boundary, limiting the definition of outdoor learning. This is not the case at Thatchwell Primary:

> *"Probably not sustainability is it? No, I like them to learn outside, so the children are encouraged to go and the staff are encouraged to take the children out, so story starters, maybe starting off a theme, maybe introducing a science project"* (Heather).

Heather recounts the story a colleague leading his class's collective worship outside as an example (see 5.1.5). Another example is a Mathematics lesson, described by Ken at Park Primary, which involves a treasure hunt with children trying to find information about equivalent fractions.

At Strawhill, infant classes model the 'circular economy' (Webster & Johnson 2008) albeit unwittingly:

> *"We did a project at Christmas time ... and* [the TA] *was saying, well, we have to think, afterwards ... this is going to get thrown out... so we can* [re]*claim... Don't glue the tinsel on, or stick it on, we can just lay it on, and ... reuse it next year, rather than throw it out, and have to buy new"* (Rebecca).

There is no awareness here of the literature around the 'circular economy' so the message remains one of recycling and re-use – an opportunity missed rather than a contradiction.

All interviewees report having green teams, eco clubs and/or school councils. Among these exercises in citizenship a distinction can be drawn between the 'instrumental fact' (Olson 1992) of getting elected by peers and the 'subliminal message' (*Ibid*) that taking environmental action is a privilege. By definition, clubs do not involve *all* pupils in their school and by attracting the 'converted' they can create further distance:

> *"...there's a feeling within the school community that ... the eco group that I run is a bit geeky and it's ... just the science nerds... So there's a bit of a perception barrier..."* (Bob).

Words like 'geek' and 'nerd' illustrate the otherness of eco group members in the eyes of peers, little wonder that maintaining momentum is a recurring concern:

> *"It's quite difficult to get students interested – they 'don't see the point'. The majority do it because there is some incentive rather than believing in the cause"* (Sarah).

The term 'cause' reveals the status of sustainability as a special interest while incentives such as time off lessons or prizes to facilitate participation appear at odds with the proposed 'success indicator' of *spontaneous student-led action* (Table 4.1), a contradiction confirmed by the dilemma analysis (4.1.2).

Continuing professional development in EE/ESD appears to be a distant memory for interviewees. The lack of provision contradicts the bolder outcomes listed in Table 4.1 as schools are forced to rely on their own resources with mixed success. Where an active local authority has facilitated learning through conferences and school-to-school visits interviewees report powerful professional learning experiences. This is a 'dynamic network' *across* schools (Posch 1994) rather than the 'hierarchical network' that Eco-Schools uses, sharing learning downward through a hierarchy led by *ambassador* schools such as Kings Secondary.

A review of the twelve school websites (Appendix VIII) shows that these are not significant vehicles for EE/ESD suggesting that sustainability is outcompeted by other priorities. Bob at Farm Secondary manages his school's 'green page' describing it as *"four clicks away ... It's well buried."* Bob is optimistic about expanding the use of his school's virtual learning environment but sees a contradiction between information and communication technology (ICT) and sustainability:

> *"...I've drawn down my blinds so I've stopped all the natural light coming in so I can use my smartboard, that uses an amount of energy and the use of my computer rather than just having a blackboard and the blinds open"* (Bob).

Nobody suggests *not* using ICT so the potential contradiction is not recognised. Typically where ICT is mentioned, it is in relation to 'switching off computers.'

Community

The artefact of community linking and the object of a sustainable school have a dialogic relationship with each impacting on the other. The data illustrates how:

(a) community links can promote a school's sustainability ethos by, for example, including 'eco stalls' at school fairs, and

(b) sustainability can be a motivation for forging community links in the first place.

Parental involvement works in both of these ways. Park Primary recruits support for practical projects from parents who may not otherwise be involved in the school. As with participation in international development projects (Pretty 1993), school-community interactions appear most meaningful where participation is *functional*. This school also expects children to 'badger' their parents into positive behaviours at home. The latter approach has inherent dangers as Ardoin *et. al.* (2013) observe, "no one likes being told what to do and this detracts from the critical thinking element … of education" (*Ibid*: 80). However, no interviewees appear to recognise this hazard or see any potential contradiction.

Unsupportive parents reveal 'quarternary contradictions' (Engeström 1987) that exist between the school activity system and surrounding systems. Philip describes his "*feisty conversation*" with a mother regarding her son's packed lunches that contravene the school's healthy eating policy. Parentally-driven contradictions also occur in the absence of parents as in the case of

Melanie's struggle at Newhouse Secondary in trying to overcome a student's aversion to cooking different foods when her mother "*will only eat beige food*." Parents are *in* the class in the form of "beliefs, attitudes and habits of mind … embedded in the mind of the child." (Stoll et al. 2003: 134). Quarternary contradictions are discussed below (4.3).

The use of international links can illuminate the values in play within a school; Ellen describes the purpose of New Primary's link to a school in Sierra Leone as '*challenging perceptions and changing attitudes*' whereas Farm Secondary's Kenyan link school is a focus for fund-raising for some students, which can confirm stereotypical power imbalances.

4.1.4 Primary tool-based contradictions in the perspective document
The following contradictions were identified and tested:

C6. Technology versus ethos (Level 1)

> Technology like photo-voltaic arrays, wind turbines and automatic switches are important as demonstrations to our students
> *versus*
> Sustainability is not about the 'bling' of technology, it's about the school ethos, such as being caring and sharing

The wording of the first statement could more usefully have read, "It is *most important* that technology, etc.". By simply being 'important' respondents found it easy to agree with both statements thus making this appear to be a strong dilemma. That said, it is interesting to note the widespread agreement with the second statement that favours ethos over technology. This contradicts the emphasis that many schools place on 'green' infrastructure as if a wind turbine can secure a school's green credentials. If tensions arise they are likely to be between technology enthusiasts and others over spending priorities within the school; as such this is a *judgement* with straightforward management implications.

C7. Maintaining balance without bias versus sustainability as underpinning concept (Level 2)

> It's important that our pupils have a balanced education across a full range of subjects without bias
> *versus*
> We should ensure that sustainability underpins all subjects right across the curriculum, otherwise it remains optional and can be missed

Respondents generally agree with both statements but this is not a straightforward judgement. Two interviewees express concern that sustainability is often seen as 'political' by colleagues (a view that they share) yet they also want all of their colleagues to address EE/ESD in their teaching. This contradiction is problematic because it is not resolved by integrating sustainability more deeply, indeed that could make matters worse.

Interrogating the data further, three distinct approaches to the curriculum emerge:

> **(a) Isolated:**
> Weak engagement by staff can actually reduce contradictions as teachers who are wary of bias simply avoid issues, "*it's really down to the teachers rather than the curriculum* (Sarah). Efforts by individuals may be disconnected, *"…other departments do things within their curriculum that are sustainable but again I don't know if they identity that they are"* (Bob).

(b) Infused:
Kings Secondary brings teachers together to plan units related to sustainable development. This is not a school-wide reorientation but a 'greening' of existing curriculum areas. Such infusion is often opportunistic:

> *"…we really got involved in the energy [and] thought 'hang on there's an opportunity here to do something in the curriculum.' … So that's basically how it tends to come about"* (David).

Again, those who wish to avoid EE/ESD can do so and members of the curriculum development team appear to be self-selecting.

(c) Integrated
Two respondents advocate integration using distinctly different approaches. As headteacher of Manor Primary, Philip has adopted a holistic view of the curriculum based on a vision of pupil attributes. A well as literacy and numeracy this vision underpins the school's international links and its Eco-Schools programme, not simply for accreditation but as:

> *"...a means of improving and enriching our children's learning … my feeling was that we needed to create young people … who could recognise what some of the world's problems were and in their limited capacity as young people could start to, simplistically, start to consider resolutions"* (Philip).

Rather than specifying narrow competences Philip outlines broad aims that do not limit possibilities for teachers, these constitute what Dewey (1916) terms 'legitimate aims' and include 'action competence type attributes' (Lee *pers. comm.*).

At Newhouse Secondary another form of integration is being explored by Louise, who equates sustainability with 'smartness' or doing more than one thing at a time. The process began when Louise approached the English department after discovering that her able Key Stage Three students struggled with the task of evaluation in Science:

> *"…we learned this fundamental difference: in English, you evaluate and then form a conclusion and give your final thoughts; in Science you form a conclusion based on your results and then evaluate your method. And that's really simple and easy to understand but nobody told the kids that… So there was this whole unsustainable approach to teaching … what a waste of time! If we just taught them 'this is the difference', all of that would take one lesson, not five"* (Louise).

The content may not be *about* EE/ESD but Louise's approach of combining economy (efficiency of work) with social well-being (avoiding staff burnout) is *underpinned* by sustainability principles rather than simply 'greening' curriculum content. Such a curriculum represents a boundary object (Clark *et. al.* 2011) developed by multiple sources for use by a community of teachers who must engage in 'boundary work' (*Ibid*) to maintain the integrity of their own syllabus while admitting knowledge from elsewhere to enrich it.

4.1.5 Secondary contradictions between tools and object
Two pairs of statements fall into this category:

C8. Pupil-led versus Staff-facilitated action (Level 1)

> Sustainability means facilitating pupil-led action, giving them opportunities to participate as monitors, watchdogs, committee members, etc.
> *versus*
> Spontaneous pupil-led action taking place around the school without any teacher involvement is a key indicator of success in a sustainable school

Accepting that the nuance between 'facilitating' and 'spontaneous' pupil-led action may have been lost, both of these statements scored highly in the dilemma analysis. There is a judgment to be made here, not *between* the two approaches but about *when* the mediating artefacts that facilitate action should recede allowing the outcome, spontaneous action, to occur. The difficulty with the latter is that it cannot by definition, be planned.

A rare example arises at Farm Secondary where students who had grown a glut of tomatoes gave their surplus crop to peers who made chutney that they sold to buy resources for their link school in Kenya thus giving an outstanding, if unforeseen, EE/ESD outcome: growing food, entrepreneurship and global awareness all linked by student-initiated action. Bob, who recounts the story acknowledges that this was unexpected and therefore not recorded yet it was "*a brief moment where I thought we made it.*"

The contradiction arises because although spontaneous action is desirable, the data makes scant reference to any activity designed to bring this about. The concept of action competence (Jensen & Schnack 1997) has much to offer here as it would provide a facilitative framework with the specific aim of enabling pupil-led action.

C10. Omnipresence versus thought-provoking (Level 2) P

> Sustainability needs to be prevalent across everything we do, otherwise by omission, we're saying it's not as important as other things
> *versus*
> As a teacher, I'm not here to say, 'this is how it should be,' it's getting pupils to think about things

This reflects earlier contradictions C1 and C2 although instead of focusing on differing outcome it highlights the potential contradiction between the object, being a school that produces pupils who think for themselves, and the wider curriculum as mediating artefact to support a process of making sustainable behaviour 'second nature'.

There is a high rate of agreement with both statements among respondents suggesting that, given the possibility of making their schools reflect sustainability in everything it does, they would at some point come up against the problem of students simply not being required to think about this as an issue. This again is a dimension of ESD 1 and 2 (Vare & Scott 2007) being played out across the activity system. It also illustrates a flaw in existing sustainable school descriptors (Webster & Johnson 2008; Gayford 2009; Scott 2010) that propose near-utopian models of sustainable schools as ideals for teaching EE/ESD.

4.1.6 Division of labour

The data relating to this element of the activity system falls into three categories: school leadership, EE/ESD co-ordination and other key players.

School leadership

The phrase 'leadership and management' has become so widespread that these two terms may seem interchangeable but the data reveals examples where leadership has ensured the success of initiatives and built positive cultures (see 4.1.8) and where withdrawal of leadership

support has devalued EE/ESD in the school. The demoralised eco co-ordinator at Abbey Middle School, for example, is no doubt where the problems lie:

> Interviewer: *…if you could change things … here…*
>
> Julie: *Well only management really.*
>
> Interviewer: *OK, so it's back to that.*
>
> Julie: *That's where it starts and stops I'm afraid.*

In fact Julie's school appears to be well-managed in many respects (Ofsted Report 2011) but the *leadership* in terms of EE/ESD is lacking.

At Newhouse Secondary, Louise feels that school management compares unfavourably with businesses because financial costs are masked:

> "*You don't learn from it though, do you? The same way you do if something that cost you a lot of money; you really learn from that"* (Louise).

There appears to be a mismatch between the currency for many teachers (time) and that of senior managers and planners (money). Louise claims that decisions about procedures that cost teachers time would not be made if the true costs were understood. She sees any form of wastefulness as indicative of unsustainable thinking, adding, "*stupidly enough it would save money."* Louise uses the term *sustainable* liberally, linking her unhappiness with school management to the theme of the interview.

A 'lack of time' is the biggest complaint among teachers:

> *"…it's one of these things where teachers think 'yeah, that would be great but I haven't got the time'"* (Barbara).
>
> *"I just find that the school's so mental, it's so busy that the biggest thing that stops me doing things … is the amount of time I have available" (Bob).*
>
> *"It's a small school, everyone's got millions of hats"* (Rebecca).

Recognising time as a currency reveals the primary contradiction within activity systems, between use value and exchange value (Engeström 1987). Every activity has a value and a motive but it also has a cost and time can be 'bought' and 'sold' by the priorities that are set within the system. It is notable how comments like those above do not occur in the data from schools with a committed leadership and embedded approach to EE/ESD.

As the head of a large primary school, Philip sees the role of middle management as crucial. He concedes that his approach appears 'top-down' but he talks of *their* vision and policies rather than simply cascading his own; he promotes distributed leadership in general rather than specifically on sustainability. Both Philip and Louise recognise an iterative relationship between EE/ESD and broader notions of sustainable management.

EE/ESD co-ordination

A common concern of frameworks such as Eco-Schools and the Energy Project is the development of a whole-institutional approach to sustainability. This is a deliberate effort to avoid the trap of relying on 'lone enthusiasts' who may be unsupported.

Sarah at Valley Secondary notes, "*the only people who do it well are the people who are interested in it."* Similarly, Rebecca at Strawhill Primary is frustrated at the lack of *proactive* support from colleagues although they are supportive 'on request'.

At Royal Secondary, Michael has strategic support for his role as suggested by his having an energy-saving performance indicator:

> *"…I have my performance management objective to reduce energy costs by 5% per year, which I think is probably quite unusual"* (Michael).

This in itself is an indicator of the seriousness with which the school leadership takes energy costs and suggests that Michael will be well-supported in succeeding in this objective.

Other key players
Bursars or business managers have had a positive impact in primary schools bringing business acumen and fresh skills to the school's efforts to be more sustainable. Views are mixed at secondary schools that have more experience of this role. At Royal Secondary the Finance Officer helps to drive efficiencies by researching energy suppliers, whereas at Farm Secondary, Bob complains that the bursar fails to look at the 'bigger picture' in their decision-making. Interviewees in two other secondary schools find their business managers obstructive.

Site managers and caretakers appear to be universally popular and supportive of efforts to make their school sustainable. Administrative and supervisory staff often make proactive contributions once sustainability is embedded in the school. The data also mentions the support of school governors although their positions are temporary.

Many tasks are managed by the students themselves although this involvement is often extra-curricular in nature (4.1.3) and falls to self-selected volunteers except where tasks are designated to specific classes or year groups.

4.1.7 Primary contradiction in division of labour
Only one of the dilemmas in the perspective document is linked to this element of the activity system:

C8. Lead co-ordinator versus shared responsibility (Level1)

> There should be an identified staff member in a sustainable school, a person with the vision; you need somebody in overall charge
> *versus*
> Sustainability should simply be part and parcel of what the school does; it's everybody's responsibility

The high level of agreement with both of these statements points to a demand for clear leadership by a co-ordinator *and* joint responsibility across the staff. With care, these need not be mutually exclusive as Park Primary demonstrates where the eco co-ordinator, David, occasionally discovers actions taken by other staff members *after* they have occurred. The extent to which this matter of judgement is managed effectively will depend on the prevailing culture in the school. The data shows how culture, like leadership, can support or undermine the efforts of committed individuals (4.1.8).

4.1.8 Rules and Culture
While the national policy framework is the same for all schools in the study, within each activity system the 'way of doing things' will have profound implications on how policy is

translated into practice. This section begins with an analysis of data relating to culture and schools' internal arrangements before turning to external rules (policy) and inspections.

School culture

A thorough cultural analysis of even one school is beyond the scope of this thesis. However, as discussed in Chapter Three, an additional round of interviews took place facilitating a 'deeper dig' beneath the surface in three schools revealing distinctive cultures in each.

At Park Primary the eco co-ordinator, David, reports a setting in which the whole school community is supportive and contributes to sustainability efforts. An experimental outdoor lesson on equivalent fractions for example (4.1.3) was possible because the teacher leading the activity felt 'safe' to do so:

> *"…as a staff, we're encouraged to take risks … it doesn't matter if your lesson falls apart or doesn't go as you wanted it to go…"* (Ken)

Ken values this freedom to try new techniques and ideas verifying David's description of a supportive culture that extends beyond 'green' issues to include anything from outdoor maths lessons to helping with sports days. Such a culture allows staff to overcome fears engendered by rules and inspection regimes (see below).

At Newhouse Secondary the nationally competitive 'league table' culture appears to have infused school culture:

> *"There are … teachers that, if they're doing a revision session, they'll only let their class come. Because it's only <u>their</u> individuals and <u>their</u> marks that they care about – but to me that's lack of... effective use of resources and it's unsustainable"* (Louise).

Melanie observes how this obstructs cross-curriculum learning:

> *"It's very much 'my department, my protection,' don't want to cross over those boundaries, don't want to cross-fertilise…"* (Melanie).

Melanie shares the example of staff failing to participate in a simple curriculum audit on sustainability that Louise initiated. This culture impacts on Melanie herself; when asking if students can return late to another lesson after a trip, the response from colleagues is, *"no, I want them back."*

At Valley Secondary, a recent disappointing Ofsted inspection has undermined staff morale but this may be indicative of deeper failings:

> *I think that one of the problems here is we've lost our direction … we don't have a, you know, the school uniform's slipped … the Head would like to think we've got a really clear ethos but I don't think the staff would agree with that"* (Amy).

As Sarah noted (4.1.2) support for EE/ESD from senior management at Valley Secondary has waned over recent months as other priorities have taken over.

This is not to suggest that strong cultures necessarily support sustainability. Barbara at Broadreach Secondary insists her school has a coherent culture; it appears resilient externally and well-integrated internally (Schein 1990). However, this school appears to have the weakest engagement in sustainability across this sample; indeed, such self-confidence may explain this lack of interest. That said, Barbara agrees that if EE/ESD were adopted here, it would probably be sustained in such a culture and become *'this is what we're all about.'*

Care is required when discussing such a malleable concept as culture; it is certainly unsafe to generalise across a school as 'balkanisation' (Maslowski 2006) takes place with sub-cultures developing and shifting in response to internal and external factors. The Science department at Newhouse Secondary has a distinctive approach to cross-curricular working (4.1.4) where Louise sees herself as an agent of change despite resistance from elsewhere in the school:

> *"I might get an email back saying, 'Well, be careful, you've only been a teacher for a year, … so I very quietly feed it in, and let people think it's their idea. It's like living with a man! [Laughter]"* (Louise).

Change is not necessarily easier in small primary schools; Rebecca notes that because people know each other well "*you can't work through rules,"* so ideas must be introduced gradually.

Headteachers have more options available, both Philip and Heather put sustainability high on their agenda and take care to recruit new staff members who 'want to make a difference.'

Surrounding cultures can seep into school communities via staff and pupils (see 'Community' 4.1.3); this gives rise to what Engeström (1997) terms quarternary contradictions (4.3).

The drive to become a sustainable school can either be absorbed into the logic of an increasingly marketised culture or it could be employed as a lens through which to critique current management practices. The data reveals both approaches.

At Thatchwell Primary the headteacher's recognition of how sustainability 'sells' the school (4.1.2) appears to contradict her internal motivations. Conversely, Michael at Royal Secondary is pleased to see management tools such as performance indicators being pressed into the service of sustainability (4.1.6). This perspective would have been alien when Michael started teaching decades earlier; this is a case of 'living and practising the discourse' of management (Bottery, 2000).

A widespread EE/ESD activity that may support a cultural shift is the increased responsibility of pupils for aspects of school management. While there is not a rich seam of data on action competence, there are examples of measured hand-overs of responsibility in proscribed areas, often 'policing' the teachers:

> *"…it's practical stuff … Sweeping up outside … litter picking, going round Gestapo-ing telling people to turn lights off and that sort of thing"* (Rebecca).

> *"…we have a hit list of departments and the* [Energy] *team go around; if they spot lights on anywhere, there's cards and it's tagged … so there's all sort of incentives and negative publicity (laughs) pressure on staff – I mean they're absolutely paranoid"* (Michael).

What seems fun for the 'spies' can become off-putting for others. Terms such as 'paranoid', 'Gestapo' and 'hit list' may explain why naming and shaming attracts almost universal disapproval among responses to the dilemma analysis (4.1.9).

A significant form of cultural shift occurs as pupils move from primary to secondary school; this is a challenge for EE/ESD. From the secondary perspective teachers acknowledge that much is lost because, as Melanie explains, "*we assume they're starting afresh but actually they're not, they're building on lots of knowledge,"* while at a successful Eco-School like Park Primary:

> *"…you talk about 'is there anything I would change,' I think that is the one, the transition to secondary school would be the thing that concerns me … what I've*

> *heard from children who have left us, some very keen ones, it has been very difficult at times to carry on in the secondary school..."* (David).

Despite this lack of progression, David has come across examples of ex-pupils initiating activities in their secondary schools. Motivated pupils leaving Abbey Middle School have become change agents; Julie reports that the High School had no 'green teams' but now has a strong sustainability ethos. This suggests that her students have developed some 'action competence-like attributes' (Lee *pers. comm.*); they encountered a situation that they wished to change and effected change themselves. This was not a foreseen outcome, which makes it all the more impressive.

Rules and codes

Although no schools in the study have specific rules on sustainability other than not littering and avoiding damage, exhortations to 'care' are widespread and there is an expectation that *"sustainability flows naturally out of that"* (Ellen).

Numerous examples of 'eco codes' are drafted with student participation. Typically these include efficient use of energy and water, development of diverse wildlife habitats, encouraging exercise, reducing the school's carbon footprint and occasionally making pupils aware of how they can make a difference. The status of eco codes is raised variously by being attached to school rules, adopted by governors or printed in pupils' diaries. This contrasts with Forest School rules that are specific, pre-determined (with local adaptations) and written for staff and pupils to follow.

For those *breaking* school rules, Kings Secondary adopts the traditional sanction of litter-picking, a 'community service' activity to improve the school grounds. The subliminal message 'doing the right thing is a punishment' appears contradictory.

Thatchwell Primary avoids this trap by means of zoned play spaces for pupils who misbehave in the 'forest' area:

> *"...they're moved into the next zone down until they're on 'zone one', which is the tarmac area, which bores them to tears and they hate it so they kind of earn the right to come out again"* (Heather).

Good behaviour is rewarded with richer play-space thus a novel sanction regime overcomes a potential contradiction.

Government policy and initiatives

Only two respondents feel that the withdrawal of Government support for the National Framework for Sustainable Schools (NFSS) had a direct, negative impact on their school's engagement in sustainability. Valley Secondary's green group, for example, *was* important to the school leadership but since the 'Government driver' has gone there is no Senior Leadership Team involvement.

King's Secondary appears to have embedded EE/ESD independently of any Government driver:

> *"I don't think at all, as a school, we would say 'right OK, they've taken the initiative away, we don't need to do it anymore.' I don't think we'd ever take that stance ... I don't think we'd change our practice"* (Cheryl).

Cheryl had not heard of the NFSS herself.

The interviews did not make a clear distinction between Government *policy* and *initiatives*; this may have contributed to quite different approaches being described. At Broadreach Secondary the headteacher has:

> *"…a quite refreshing attitude towards Government initiatives. If they're serving any purpose in the school then he's interested, if they're not, then he finds a way around it … he's not going to let that drive the school...* (Barbara).

By contrast, the leadership at Farm Secondary responds to Government *priorities* with dedicated committees and internal training days.

While schools may be ambivalent about initiatives, they cannot choose to ignore policy; both may inform school inspections. In the dilemma analysis (4.2), interviewees seem neither ambivalent nor assiduous in their approach to policy.

Ofsted inspections

The contradiction between a narrow focus on SAT or GCSE results in 'core' subjects and the wider demands on schools is felt keenly by those who are held responsible for overall performance. Heather has recently become the head of Thatchwell Primary and feels the pressure on her as a leader:

> *"…if my reading, writing and maths results dip I know there's going to be a knock at the door and I'm, you know, nights at Tesco's here I come"* (Heather).

While Heather makes a joke of it, this 'culture of performity' (Ball & Olmeda 2013) leaves her with an underlying fear.

The narrowing focus of inspections reflects the education policy of successive governments but changes of emphasis within this trajectory also frustrate teachers:

> *"In fact, we've just had an Ofsted that says we need to do more in terms of skills-based curriculum, and last week on the news, they're saying, it needs to be content curriculum. And I'm just thinking, look, … on a two month turnaround, can you just hold it together for longer than that, please ... before you diametrically ... What the heck do you want us to do?"* (Rebecca).

This highlights how the activity systems of policy, inspection and schools move at different paces and cannot be expected to align at any given moment.

Rebecca is further frustrated when inspectors overlook the socialising value of a craft-based project involving local pensioners, including pupil's grandparents:

> *"… that's the school community together, it really is – and that's Eco. But that doesn't feature in Ofsted or anything, it doesn't translate into results particularly, but it does make for a happy workforce ... but you can't immediately translate it into Level 2A, or something mathematical…"* (Rebecca).

Strawhill Primary's inspection report features this inter-generational activity highlighting its "lack of emphasis on child-initiated learning" (Ofsted Inspection Report, 2012). There is no recognition here of "what can be achieved when children collaborate with each other and with adults to develop and make use of new knowledge…" (Barratt Hacking *et al*, 2007: 236).

All respondents concur that inspectors' judgements on school performance bear no relation to the quality of work on sustainability or any other 'enrichment' activity:

> *"…although an Ofsted inspection will say 'this school has a rich curriculum' and it has eco schools and healthy schools and sports mark and all the rest of them … actually what they really benchmark us on is can our children read, write and count, and anything else might be a nice little bonus…"* (Philip).

The review of Ofsted reports from these schools (Appendix IX) highlights concerns with quality assurance procedures with no mention of Philip's 'little bonus'.

Only one of the recommendations resonates (accidentally) with a moment in international EE/ESD policy discourse. The inspectors advise Park Primary to ensure the progress of its more capable pupils by "involving them more in setting their own progress and setting targets." (Ofsted Inspection Report, 2010) This echoes the question "Do institutions/learners develop their own SD/ESD indicators for their institution/organisation?" in a framework of ESD indicators (UNECE 2009: 57). The underlying philosophy of empowerment is similar but the UNECE intention is far broader.

Other external rules

Examples of how attitudes, habits and legislation can hinder schools' EE/ESD efforts include planning restrictions preventing Royal Secondary from installing solar panels because it lies in an Area of Outstanding Natural Beauty. Health and safety regulation is cited in relation to not using eggs from school hens, having to wrap food items with cling film and not using 'dirty' vegetables. Sustainable travel plans have suffered where safety concerns override bicycle use and fears of contravening data protection laws undermine attempts at car sharing. Plans at Newhouse Secondary to plant 'bee-friendly flowers' were halted by the very business manager designated to drive sustainability who feared the school "*might be inundated with bees."*

These situations do not pose dilemmas rather they suggest misunderstandings around legislation or simply objections to change. They also reflect an increasingly risk averse culture within some members of the school community. One respondent will no longer take students on trips for fear of litigation while another insists on making trips possible. Differing attitudes are apparent in these comments on using vegetables grown at the school:

> *"At the moment, obviously, we can't use the vegetables because it is a private firm and so on, so we can't do that…"* (Barbara).

> *"…we've sold some of the food on to our hot dinner company and* [they] *have informed us when they've used our food for the children's meal"* (Heather).

Barbara's view is bounded by her perception of current rules while Heather's expansive approach steps outside of known practice in order to overcome the contradiction.

Concerns over the rules and regulations received a mixed response in the dilemma analysis suggesting that such contradictions can be overcome when EE/ESD is prioritised.

4.1.9 Secondary contradiction between rules/culture and other activity system elements

The following pair of statements relate to division of labour and rules and culture:

C11. Additional effort versus integrated to workload (Level 3)

> Driving sustainability in school requires voluntary effort – it's important to spend our own time on this to make it work
> *versus*

All staff should be trying equally to integrate sustainability into their existing work even if things don't go as planned, it's innovating that matters

There was moderate agreement with both statements with more, perhaps surprisingly, in favour of the first. This may be because the statement about voluntary effort reflects the reality for most interviewees rather than a case where all staff contribute and even experiment with EE/ESD. That would also help to explain the reluctance of teachers to professional contradictions in general. C11 appears to be a judgement to be managed.

C12. Bureaucratic barriers versus need to get students out more (Level 4)

There are too many rules (health and safety, data protection, etc.) and associated paperwork to do things differently these days

versus

Our main task is to give pupils experiences of the world beyond the classroom, that includes contact with nature and the world of work

These statements pitted 'rules and culture' against pedagogic 'tools' with most respondents rejecting the notion of rules being major obstacles. The data shows that rules are obstructive where individuals perceive them to be.

C13. Positive reinforcement (use of 'carrots') versus naming and shaming (use of 'sticks') (level 6)

It's a good idea to have positive reinforcements such as 'green awards' built into our merit system

versus

An effective approach is to run a 'name and shame' campaign to improve behaviour and for pupils to tell the teachers off!

No dilemma is registered here as respondents favour rewards rather than punishments. The contradiction is not between these statements but between (a) teachers' support for an effective tool for student engagement and (b) their rejection of a command-response approach to behaviour change (4.1.8). Melanie's view is revealing:

> *"…we normally get bad marks* [from the spies] *because it's two teachers to a whole room of lights. They don't know about my tumble driers and my dishwashers and my washing machines, they just turn off the lights"* (Melanie).

This acceptance that undiscerning spies have limited impact environmentally, implies that Melanie tolerates the approach for its engagement value. There is a judgment to be made here as each school manages this contradiction.

4.2 Tertiary contradictions

According to Engeström (1997) tertiary contradictions occur between the object or motive of the activity system and the object of a 'culturally more advanced form' of the activity. Only two of the 'dilemmas' in the perspective document are identified as tertiary contradictions. The extent to which adherence to shifting Government policy can be termed 'culturally more advanced' is open to question but in locating the following two statement pairs, tertiary contradictions seems the best fit.

C14. Policy-led versus professional autonomy (Level 3)

Government support is needed to drive schools to act sustainably; if sustainability was at the core of what the Department for Education wanted, it would be at the core of schools
versus
We shouldn't wait to be told what to do by Government because we're the professionals

These statements are not mutually exclusive but do represent distinctly different attitudes encountered in the data; both attract support from respondents. Sarah at Valley School cites the lack of a 'Government driver' as a major drawback to winning support for EE/ESD at Valley School whereas Cheryl at Kings Secondary, an Eco-Schools Ambassador School has never heard of the NFSS. In terms of Winter's categories of dilemma, this would map onto an 'ambiguity' because the direction of Government policy is a complex issue beyond the influence of any particular school and therefore requires no course of action other than to respond once it reaches the level of the activity system.

The final pair of statements also relates to Government policy and can be seen as an ambiguity for the same reason as C14. Inspection is not a tool *of* the school but of a larger system that, through its demands on time and effort, will influence a school's object/motive.

C15 Necessity to reflect policy versus adopting wider view of policy (Level 5)

People don't like Government edicts telling them what to do – and anyway, we know policies change every few years so one can work around them or simply wait them out
versus
Our goal has to be student achievement – Ofsted only benchmark us on whether children can read, write and count

Respondents reject both of these statements implying as strong a dilemma as universal agreement might indicate. Policy, they feel, cannot be ignored, neither do respondents feel restricted to the priorities measured by Ofsted. The contradiction lies between an overarching system of high stakes inspections and the totality of school activity and outcomes that go largely unmeasured.

While inspections focus on the aspect of education that Biesta (2009) terms *qualification*, teachers recognise that *socialisation* and *subjectification* will always remain important outcomes of their activity regardless of whether these are inspected.

As well as being an 'ambiguity' (Winter 1982) this situation requires judgement on the part of school leaders to overcome this contradiction (see 5.2).

The tertiary contradiction between the current forms of sustainable school pursued by schools and more 'culturally advanced' forms discussed above (2.2) are not evident from the data. This suggests that teachers are not aware of the possibilities proposed in the literature.

4.3 Quaternary contradictions

This fourth level of contradiction represents those between a given activity system and its neighbouring activities. No quarternary contradictions were tested in the perspective document. In the case of a sustainable school such contradictions become apparent when the values of wider society conflict with those that the school or teacher is trying to promote. Melanie, for example, senses the contradiction between her attempts to model positive behaviour, buying Fairtrade bananas, and the attitude of her teaching assistants:

> *"…if someone's going, 'Oof, you can get those sort of bananas lots cheaper than that in Asda and they're not Fairtrade that's so much the better.' Those little things I think that can undermine… It's very slight, very slight, but … you multiply that across, then you're not going to be modelling what the pupils need to be seeing"* (Melanie).

"*What the pupils need to be seeing*" is reminiscent of Sarah's phrase "*the cause*" (4.1.3). Melanie's normative model includes buying Fairtrade bananas; promoting this represents an ESD 1 approach (Vare & Scott 2007). An ESD 2 lens might highlight the learning opportunity that lies in the students observing, and engaging in, the argument between Melanie and her colleagues. This quarternary contradiction could be an example of 'expansive learning' waiting to happen (5.1.5). Other examples include Philip's argument with a mother who sent her son to school each day with a MacDonald's meal contravening the school's healthy eating policy and Julie at Abbey Middle School and Amy at Valley Secondary lamenting the increasing 'selfishness' among young people.

External systems may interact with sustainability issues; students at Farm School, for example, know something of energy saving because it is 'in the media'. For Michael at Royal Secondary sustainability-related media stories only catch people's attention when they relate to existing interests and activities, not the other way around. In his view, the media cannot generate action itself but may reinforce messages given at school.

While no specific dilemma statements covered this level of contradiction, it highlights the importance of recognising pupil's social contexts (Bourdieu & Passeron 1990). Any school that regards its pupils as blank slates isolated from their activity contexts may struggle to help them reach their potential; it would not, by definition, be a sustainable school.

While several contradictions that are inherent in implementing EE/ESD in schools have been revealed, perhaps the most significant finding has been the extent to which these were *not* volunteered readily by the interviewees themselves. The way in which contradictions are addressed and the implications of this for EE/ESD in schools are discussed in the following chapter.

Chapter Five: Discussion

The first aim of this thesis, *testing notions of inherent contradictions in the development of sustainable schools*, is addressed by means of the four objectives of this research (1.1.2). The foregoing analysis covers the first of these objectives, *exploring the extent of contradictions*. The second and third objectives are discussed in section 5.1 and the fourth in 5.2 below. The final section addresses the second aim of this thesis by reflecting on the methodology used.

5.1 The extent to which contradictions are recognised and rationalised

A striking feature to emerge from the data is the extent to which interviewees do *not* recognise contradictions even when asked direct questions on this. Yet using the activity system model, multiple contradictions and dilemmas become visible. Why are these not widely recognised? Without undertaking another cycle of enquiry, which would be beyond the scale of this research, it is still possible to infer reasons from the available data. At least five explanations are apparent: *unawareness*, *powerlessness*, *denial* and '*satisficing'* (both forms of accommodation) and *expansive learning*.

5.1.1 Unawareness

Stevenson's (2007a) discourse-practice gap appears to exist in many cases simply because teachers have not been exposed to the discourse. The form of EE/ESD that they are promoting tends to be "uncritical and consistent with … weak ecological modernisation" (Huckle 1999: 10). For the practitioner who has not had access to relevant literature, the contradiction goes unnoticed (4.2). The notable absence of continuing professional development in this area exacerbates the situation. This is particularly evident in the case of *secondary contradictions*, for example, between the desired outcome of 'thinking activists' and the most commonly adopted strategy of safely pre-determined activity. The lack of tools or artefacts offering meaningful citizenly engagement underscores the absence of any expected outcomes in the area of 'action competence' that might otherwise assist in realising these teachers' desired outcomes. Schools it seems have their own rhetoric reality gaps.

Where interviewees 'sell' sustainability by emphasising economising through individual behaviour change rather than say, learning through collective action, this appears to reflect an unwitting shift in culture through nuances in language and action (Bottery 2000). This is education changing to serve society rather than challenging society. Whether this represents a negative trend depends upon one's view of policy direction. It is worrying for those concerned with wider impacts on sustainability (2.1) but it does result in a comfortable position for practitioners who are not challenged by critical or radical concepts of EE/ESD. The term 'unawareness' is used in favour of 'pre-awareness' because there may not be a drive to understand more in this field than that which has already been learned if this fits the desired model of a sustainable school (see 5.2.2).

5.1.2 Powerlessness

The language of contradictions and dilemmas may not be common currency among the teachers in this study, however to varying degrees, Bob, Julie, Louise, Rebecca and Sarah all express frustration. This is because their vision of the 'object' of their activity system is more advanced than that of their school leadership and possibly the rest of their school community. This does not arise as a *tertiary* contradiction because these teachers lack the power to introduce their more advanced conception of the object. From a school leader's perspective, their school adopts a level of activity in EE/ESD that they are happy to maintain (5.2.2).

Where this represents a more modest vision of a sustainable school than that sought by those with responsibility for EE/ESD, the potential for undermining staff morale is clear.

5.1.3 Accommodation 1: Denial

There *are* genuine contradictions but many of the interviewees are not in a position to address them themselves; to avoid a sense of 'cognitive dissonance' (Festinger in Darnton 2006), they simply complain about a problem and much like the wider 'sustainability mirage' (Foster 2008), they hope that the situation will be addressed at some undetermined future point while they focus on today's priorities. This certainly applies in the case of *tertiary* and *quarternary* contradictions where individuals may be powerless to change the parameters in which they are forced to operate. Such contradictions, which Winter (1982) terms 'ambiguities', point to far larger forces in play than EE/ESD, such as wider cultural trends, shifts in education policy and changes to inspection regimes that may be resented but not resisted.

5.1.4 Accommodation 2: Satisficing

As professionals, the interviewees recognise contradictions but manage them rather than complain; they have learned to dance among competing possibilities even in the case of truly dilemmatic situations. This is particularly true of *primary* contradictions, which the data suggests are those most commonly encountered. Here the interviewees appear to be 'satisficing' (Cuban 1992), that is, finding 'good enough' compromises based on professional judgements about what should be sacrificed in order to preserve that which is important to them. Even where a teacher reports on what Winter (1982) would term a 'problem' – Rebecca's "*I'm an educationalist, I'm here to educate"* (4.1.2) – EE/ESD is taken seriously but *not* put ahead of the teacher's vision of her primary role. Indeed, all of the interviewees promote sustainability in a normative fashion only as far as they are comfortable; some are frustrated that they cannot do more but none of them wish they could do less.

Such teachers are intelligent survivors; they 'play the game' and respond to competing priorities but do not lose sight of their own beliefs or theories-in-use. In this way, the teachers appear to *resolve* rather than *solve* dilemmas (Clark 1999). Most interviewees appear to have an instrumental view of EE/ESD (Sterling 2010b) tempered with an intrinsic view of education *per se*. This is not to suggest that they achieve a balance, rather they ride the tension in the same way that they endure narrow inspection regimes while developing the multi-faceted young people in their charge.

5.1.5 Expansive learning

A more positive explanation for why contradictions are not perceived lies in the possibility that they are 'worked through' by 'expanding' the system to overcome the contradiction, what Engeström (1987) calls *expansive learning*. In general people spoke of incremental innovation, Park Primary's journey, for example, from a simple composting project to winning national awards, but there are also examples of *expanding*, these include:

- Louise linking sustainability and inclusion as underpinning principles to overcome any contradiction with her role as special educational needs co-ordinator (4.1.2)

- Ellen realising that EE/ESD is about what the children are learning and an attitude of mind rather than the 'bling' of technology (4.1.3)

- Heather explaining how her new PE coordinator leads his class assembly outside in the environment, a new activity that overcomes concerns about crammed timetables keeping children penned indoors (4.1.3)

- Louise's example of crossing departmental boundaries to teach evaluation (4.1.4)

- Michael's performance management objective of reducing energy costs by 5% per year may be a managerialist approach but it overcomes the 'lack of time' issue by simply making an aspect of sustainability, part of the job (4.1.6)

- Heather's zoning system for play areas that reverses the situation where children are punished by sending them outside to work in the school grounds (4.1.8)

In these cases interviewees may not report a contradiction because, rather than accommodate it in their practice, they have made what Engeström (1987) terms an 'invisible breakthrough'. These examples have not been straightforward changes or discoveries; in virtually all cases the contradiction has had to be confronted; confusion and paradox is experienced and a way through is suggested or created. These are examples of new activity, 'learning three' (Bateson in Engeström 2002) or 'third order learning' (Sterling 2001).

Being new activities in their respective systems, their adoption may require a degree of risk-taking, that in turn calls for self-belief or *courageous agency* (Birney & Reed 2009). The author's first EdD assignment defined a courageous agent as one who is *prepared to risk their ontological security* (Vare 2004) in order to move beyond constraining structures. In other words, they are putting their position on the line. To do this, agents require support, often achieved through their social interactions; thus professional and social relationships are critical rather than 'toolkits' and 'guidelines'. The opposite situation appears to obtain under conditions of *powerlessness* (5.1.2) where those who express the greatest degree of frustration are the most isolated within their own activity system.

5.2 Implications for sustainable schools

5.2.1 Some practical implications

The discussion above points to a number of practical suggestions for facilitating a school's journey towards an increasingly meaningful vision of a 'sustainable school'.

There is no prospect of overcoming a discourse-practice gap if practitioners are not exposed to the discourse. In overcoming this lack of awareness, the role of continuing professional development is clearly central; not simply through 'delivery by experts' but pro-actively building communities of practice (Lave and Wenger 1991) *between* schools so that professionals can explore the issues they encounter and work through them together.

The issue of powerlessness points to the need to negotiate *within* the school setting; there is little point in striving to realise a vision that is simply not shared by others in the school community, particularly the leadership; this will lead to frustration and burn out. Leaders and those responsible for EE/ESD need to be clear about the model of sustainable school that they are working towards (5.2.2) and agree to extend or limit their aspirations accordingly.

In characterising the skills required to achieve the healthy emergence of a sustainable society, one would do well to look to the way in which teachers accommodate change and perform this dance of competing possibilities. *Accommodation* is often seen as a form of denial or 'do nothing' option (O'Riordan, 1989; Huckle, 1993, 1999; Bowers, 2002), however, satisficing, accommodating change through daily judgements and adjustments *is* 'learning one's way forward' (Foster 2008). As Engeström (2002) suggests, "we cannot do learning three all the time, we would go mad!" By absorbing contradictions and weaving them into the tight fabric of their hectic professional lives, teachers are modelling what it is to be a 'resilient learner' with a high degree of 'adaptive capacity' (Smith & Green 2011; Sterling 2010a). Such a

realisation may not only illustrate an otherwise esoteric concept but may also serve to build the self-esteem of teachers who might otherwise find the discourse of EE/ESD and resilience rather forbidding.

A recurring theme in the data is the impact of Ofsted inspections. Schools may buckle under the strain of this 'culture of performity' (Ball & Olmeda 2013) and narrow their activity to focus on *the limited range of measured attributes*. Such schools will see EE/ESD as a 'nice little bonus' that will understandably, be overlooked by inspectors. If however, EE/ESD underpins the school's primary activity (teaching), then inspection will be highly relevant. This exemplifies what Sterling (2001) refers to as the 'ethos' of the school. By maintaining a broad conception of what it takes to act upon the *object* of the activity system, the school insists on the relevance of EE/ESD to those who inspect it, regardless of the criteria they use. The inspectors may not recognise all the connections but they will record the achievements of learners and hear what they have to say about their experiences at the school (and beyond).

5.2.2 Theoretical understandings of positions on sustainable schools

The idea of alternative positions vis-à-vis sustainable schools has emerged through this analysis and discussion. What follows is an attempt to make these positions explicit with a visualisation of the relationship between EE/ESD and the rest of the school activity (Fig. 5.1).

Features of each of the four positions in Fig 5.1 are presented in Table 5.1 below. Given that in searching for sample schools, the request to the EE/ESD 'gatekeepers' was for *schools that had started or were on the journey to becoming a sustainable school*, such a range of approaches was not expected. In fact the sample covers a wide range of approach and relevant schools are mentioned under brief descriptors of the four positions:

Position 1: Discreet

Schools with one or more 'green' projects, such as recycling or even the Energy project, not linked to the curriculum and almost always the work of students with a member of staff being allocated responsibility for the project. In Fig 5.1 there is a slight overlap between the dark (EE/ESD) circle and the rest of the school because it is inevitable that any school's curriculum will cover some aspects of EE/ESD.

Broadreach Secondary is an archetype for the 'discreet' type. It is a highly successful and popular school that does not prioritise EE/ESD but is happy to make it an optional extra. If this school chose to take sustainability seriously, it would probably make an unproblematic progression to the next position.

Position 2: Dutiful

These schools use a framework such as a project, Eco-Schools or the NFSS. They work through this diligently, ticking off the boxes as each activity is undertaken. In this way a school may earn an Eco Schools 'Green Flag' with minimal impact on the curriculum although this may change as teachers, independently of each other, take opportunities to bring EE/ESD activities into the classroom. Royal Secondary lies squarely in this category, comfortable with progress within its own proscribed boundaries that ensure EE/ESD does not disrupt school activity.

Newhouse Secondary is on the cusp between 'discreet' and 'dutiful' relying on the efforts of a lone coordinator. Old Farm and Valley Secondary and Strawhill Primary also fit this position. The coordinators have high aspirations for their school but lack support either from school leaders, a critical mass of colleagues or both.

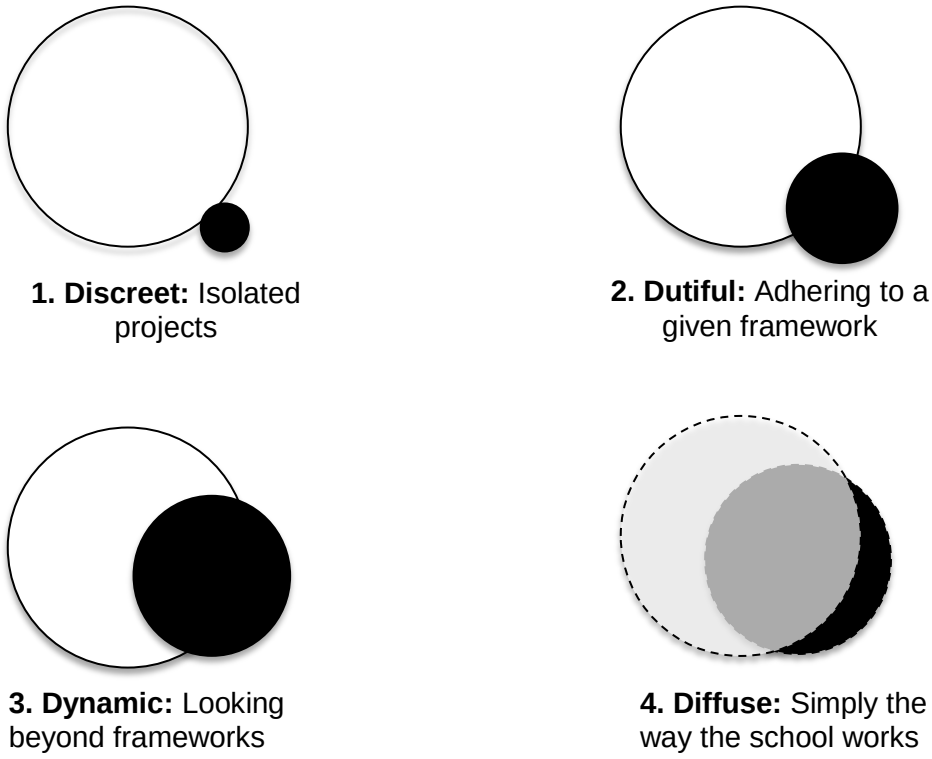

Fig 5.1: Schools and sustainability – preferred positions

Position 3: Dynamic
These schools are renowned for their commitment to EE/ESD. They may well have earned successive 'Green Flags' but more significantly, the leadership and management of the school takes EE/ESD seriously recognising its objectives as important and legitimate outcomes for their students. The school is likely to have a complex range of functional relationships with its surrounding community, many of which are linked directly to its work on sustainability. There are considerable tensions between 'mainstream' schooling and the priorities of these schools but these are managed by staff with the support of school leaders and each other. Such a school might be positioned at the penultimate 'stage' in other EE/ESD continua (Webster 2004; DCSF 2008; Gayford 2009; Scott 2010).

The sample schools in this group are in a state of flux with things apparently slipping away at Abbey Middle while the others continue to make progress in EE/ESD. Each school has a specific reason for being in this category including dynamic community links (Kings Secondary), sophisticated distributed leadership (Manor Primary), an ingrained ethos over several years (New Primary) and an unparalleled range of activity involving the whole school twinned with a risk-taking culture (Park Primary).

Position 4: Diffuse
These schools have absorbed the ethos of sustainability *and* display competence and confidence in confronting the professional contradictions that this implies. Staff members are on a constant learning journey. EE/ESD is so integrated into the way of thinking that it colours everything the school does while accepting that this is not *all* that the school does, as the overlapping circles in Fig 5.1 suggest.

No sample school exemplifies this position because none confront a truly critical or radical version of EE/ESD and try to work through the layers of contradiction this would engender. However, Thatchwell Primary is the closest because of the way its headteacher articulates an aspiration to work through the challenges of sustainability. Where contradictions have arisen, the school has approached them as opportunities for expansive learning that have had positive impacts on the whole school.

An important feature of these positions (Fig 5.1) is that they do not necessarily suggest *progression*. There is clearly an incremental increase in some aspects, particularly from 1 to 3, but this is not a matter of being placed along a continuum, rather it suggests that schools may settle upon qualitatively different forms of activity in response to the contradictions they face. Table 5.1 includes cumulative aspects that occur under the 'tools and artefacts' element of the activity system. These can be divided into the three C's of the NFSS (DCSF 2008). However, the elements of 'division of labour' and 'rules and culture' cannot be added together in the same way. Similarly, schools' approaches to contradictions are *alternative* rather than stepped; however, each school has the potential to shift to another position given a change in personnel, policy or any combination of contextual elements (5.2.3).

Included in Fig 5.1 are three 'ideal scenarios', these are:

Position 5: Schooling and sustainability as one; possibly the 'sustainable school' (DfES 2007) or more radically, an 'eco-restorative school' (Webster 2004). This is unrealistic because schools (and the society they inhabit) do not reflect a single framework, ecological or otherwise. By their very nature, schools have to 'resolve' incompatible demands and contradictions as well as allowing for unforeseen purposes and outcomes.

Position 6: ESD 1 and ESD 2 held in balance across the school (Vare & Scott 2007) – again, this assumes that education and EE/ESD are synonymous, that everything this school does can be seen as a facet of ESD 1 or 2 or, ideally, a tension between the two. Again, schools are more than this and it is would be hubristic to suppose otherwise.

Position 7: 'Good' education (Biesta 2009) – this balances outcomes of the school in terms of *socialisation* (which could include ESD 1), *subjectification* (which could include ESD 2) and *qualification* (which could involve credentialing ESD 1 and 2). Unintentionally, this comes to resemble the 'diffuse' model of a sustainable school.

Fig 5.2 places each Position on a matrix, with an increasing range of EE/ESD activity on the vertical axis and an increasing readiness to confront dilemmatic tensions along the horizontal axis. The Eco-Schools award scheme is also shown on the matrix demonstrating how activity increases incrementally while failing to address emerging contradictions.

Position	Desired outcomes (cf. Table 4.1)	Indicative use of artefacts			Division of labour	Rules/Culture	Approach to contradictions
		Curriculum	Campus	Community			
	Cumulative activities and approaches				Qualitatively different approaches (non-cumulative)		
Discrete Isolated extra-curricular 'green' projects	Saving money through energy efficiency	Some curriculum coverage is inevitable through Science and Geography. No cross-curricular working	Some energy saving activities; student led	Opportunistic links – often dependent on parental connections	Sustainability is the responsibility of a designated individual – if at all	Staff work as individuals or in subject and year group teams; they do not have EE/ESD remit	Side-stepped; not overcome but avoided (or defeated by them)
Dutiful Typically a 'Green Flag' Eco School	Environment-friendly operations Caring ethos	Lists of 'green projects'; active club(s); limited curriculum involvement; typically a 'Green Flag' Eco School	Mostly student-led activities on energy, water, waste, etc.	Some local authority and/or NGO involvement	Sustainability is the responsibility of designated individual(s)	Piecemeal efforts to work as team – interested staff help out	Compromise achieved in favour of mainstream priorities
Dynamic Thinking has gone beyond the 'Green Flag'	Holistic approach to management; aims for pupils include 'action competence-like attributes'	Some EE/ESD 'carrier' subjects identified; some effort at cross-curricular linking; some pedagogical experimentation	Staff and students involved; some activities integrated into curriculum	EE/ESD promoted through community links	Responsibility for EE/ESD distributed across staff, including the senior leadership team	All staff encouraged to explore possibilities and take risks	Compromise based on integration into mainstream priorities
Diffuse A 'Green Flag' may have been a first step	A learning organisation	All subjects have a responsibility to address EE/ESD; cross-curricular links explored and encouraged; new pedagogy explored	Activities integrated into curriculum	Wide range of community links integrated into curriculum	Strong support from the Head but responsibilities distributed across all staff and students	EE/ESD underpins school ethos. New staff selected for their EE/ESD-related values	Confronted and managed; seen as presenting opportunities for expansive learning

Table 5.1: Summary of indicative characteristics of different conceptions or 'positions' of a sustainable school

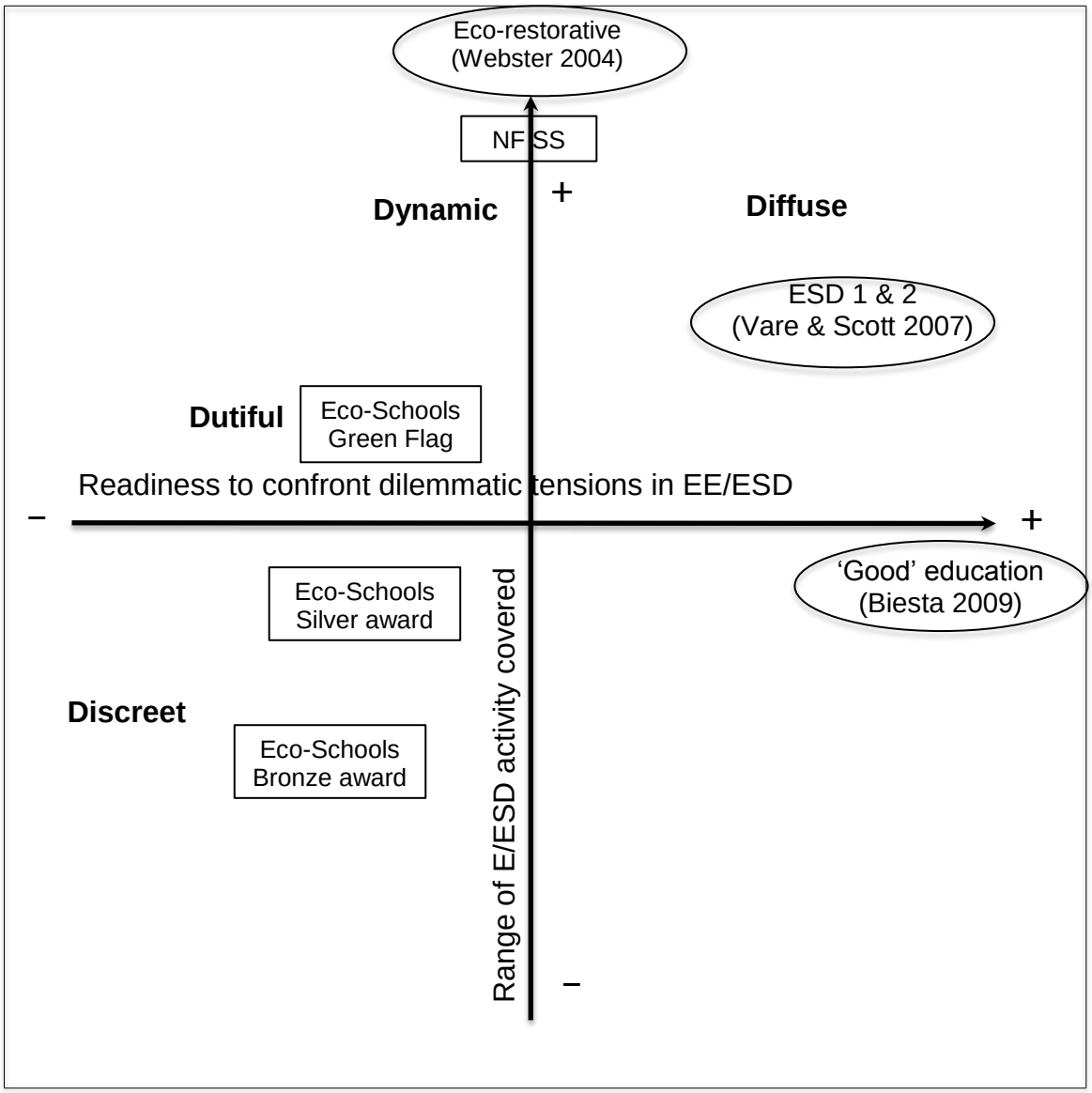

Figure 5.2: Preferred positions of sustainable schools placed on a matrix of 'increasing range of EE/ESD activities' and 'increasing readiness to confront dilemmas'

5.2.3 Reflections on policy

This research does not aim to provide policy recommendations rather it offers an understanding of professionals-in-context that might inform policy.

Given the current policy vacuum in EE/ESD, the energy with which interviewees pursue sustainability and their vague awareness of former initiatives, the data seems to demonstrate the irrelevance of policy in this area. That said, there are repeated declarations of frustration over lack of time, which suggests that EE/ESD is diminishing for want of supportive policies.

Professional development would be an important strand of any strategy. For those who have received effective support, whether through visiting experts or peers, the impacts are evident. Witness the relief and inspiration that Ellen gained from being told that her school's lack of 'green' infrastructure was not important; it was the learning that mattered.

Practice is often bounded by culturally and historically formed views of what constitutes EE/ESD and what are perceived to be barriers, often before they are encountered. A degree of risk aversion is apparent, which in turn suggests a degree of insecurity, a predictable feature of neoliberalism (Lazzarato 2009).

The use of tools and mediating artefacts reveals something of the culture within which that tool-use has developed. Eco-Schools for example, is the 'tool' of choice for many doing EE/ESD and schools have become adept at fulfilling the prescribed format. The same may be said of Forest Schools where they have become *the* way in which children learn outdoors. Any examples of movement beyond these frames appear bold and represent a refusal to become habituated to working within boundaries.

Compared to the interview data, academic discourse seems distant from reality. Talk of eco-pedagogies and eco-restorative schools has an important role in contributing to theory and long-term aspirations but currently such things are not in the collective zone of proximal development of these schools. Again, this points to a shortage of professional development opportunities.

Current policy remains a moot point. In reviewing this research, the question that arises is not why EE/ESD has failed to have a greater impact in schools but rather why it persists in the face of a largely indifferent education establishment.

Those schools that remain committed to sustainability may simply be guaranteeing their pupils an experience beyond the taught, overly-tested curriculum. In the absence of clear guidelines 'from on high' EE/ESD may even have the cache of feeling slightly subversive. Yet some interviewees crave directives from above – it would give them *permission* to pursue their interest or justify the resources they wish to expend; this is possibly another sign of insecurity.

In terms of policy, this is the core dilemma (a *problem* in Winter's (1982) typology): whether to provide a normative statutory framework, which some teachers crave, or to simply offer schools the freedom to embrace sustainability or some other agenda of their choice. The latter appears to be yet more individualising of collective problems and an abdication of responsibility in the face of society's multiple global crises. However, Lotz-Sisikta & Schudel (2007) highlight two dangers in pursuing the former strategy, i.e. the tendency to engage in empty moralising, particularly by those who are unsure of what they should be doing, and "the danger of assuming that whatever is agreed to be good will therefore come into being" (*Ibid*: 250). Not only would a statutory framework lead to widespread complacency, it would involve the very type of directive that has demoralised teachers in recent years. As Orwell (1946) warns:

"Orthodoxy, of whatever colour, seems to demand a lifeless, imitative style" (*Ibid*).

Jickling & Wals' (2007) acknowledge that sustainability is "a significant social construct of our times" (*Ibid*: 17) but caution against making this an organising principle for education. People after all:

> "…do not know what new language and metaphors will—or ought to—shape policies of the future [and] … would find it counterproductive to build a sustainable development fence around environmental thinking" (*Ibid*: 17).

Yet frameworks, such as Eco-Schools, are valued by interviewees. These however, are starting points. Like any remedial mobility aids, once we have grasped the principles of movement, we would go further, faster without them.

If Government leadership on EE/ESD is not critical, what is its role? Where it makes a difference is in its broadly stated aims for education. Schools *per se* do not contradict EE/ESD but the way they are measured, based on a narrow conception of what schools do (Biesta 2009), limits the possibilities of education.

Contradictions do exist, they are inherent in the contested nature of sustainability, but the professionals in this study do not always recognise them. They may be trapped in the logic of perpetual improvement that allows them no time to think but the data suggests they are also pursuing what they believe to be right despite a compliance culture. They are 'playing the game' without losing themselves although for most, the art of *challenging the rules* of the game is another step.

The concept of expansive learning echoes *structuration* (Giddens 1991) – by engaging fully in an activity we change the rules in subtle ways. According to Activity Theory, change is most apparent where contradictions occur. The task then is not to provide 'how to' guides that deny or avoid obstacles but to build an awareness among professionals that in resolving contradictions, they *and* their activity systems are learning. If policy has a role, it would be to acknowledge this learning and to offer opportunities for it to be shared, thus encouraging, rather than supressing, social and emergent learning.

If schools remain subject to narrow, uniform performance measurement (and this will soon be linked to teachers' reward structure through performance related pay), it cannot prevent wider learning and creativity among professionals but it may arrest much developments and lead to missed opportunities.

An understanding of school activity as an autopoietic system is potentially empowering. It suggests that the system is not something that is done to us, rather everything we do contributes in a small way to (re)generating the system of which we are a part. This offers hope as well as practical strategies for some of the more frustrated professionals encountered in this research.

To return to some moments from the literature:

> "As autopoietic systems are simultaneously producers and products, Mariotti (undated) suggests that they work in a 'productive circularity' …" (2.1.7)

> "…species do not *adapt* to environments; they *construct* them" (Lewontin in Engeström 1987) (2.3.2).

> "By acting 'irresponsibly', these teachers take 'responsibility' for the care of their selves and in doing so make clear that social reality is not as inevitable as it may seem" (Ball & Olmedo 2013: 85) (1.6.7).

If we can encourage teachers to take opportunities to discover and share creative ways of addressing a wide range of social, environmental and economic concerns, we will have the potential of offering our children a model of social learning that they may adopt and adapt for themselves.

'Wicked problems' must be tackled socially as well as technically – if technical solutions existed, they would not be 'wicked' problems after all. Schools have the potential to demonstrate the kind of learning that is required of a resilient society because teachers who survive the system *are* resilient – and often highly successful individuals.

Possibly the most valuable lesson that professionals working in a sustainable school can share with young people is not *what* they teach nor *how* they teach it – but *who* they are.

5.3 Reflections on methodology

The second aim of this thesis is to explore the extent to which a theoretical framework based on Activity Theory can *contribute to the analysis of learning for sustainability in a range of schools and other settings.* Activity Theory does not specify methods for doing research, hence this section reflects on the methods used before suggesting a contribution to theory.

5.3.1 Using the Activity Theory Framework

A number of drawbacks with Activity Theory have been raised in this study and elsewhere. The questionnaire approach used in this enquiry is re-visited in light of these issues.

Time and complexity

A thorough investigation using Activity Theory is a demanding approach that this researcher was unable to pursue despite expending much time and effort. Researchers must be prepared to work their way into the system, to see it from the inside before they can reflect the perspective of subject-in-context. This is not an ethnographic approach that seeks to 'lose' the researcher, rather the researcher is expected to intervene while subjects change in response to the intervention and so on. Outcomes may impact multiple levels, from strategic to managerial to operational with staff development supporting the change. This has the potential to be very powerful but only if a setting has the resources to support this. In their current context of narrowly defined performity (Ball & Olmedo 2012), schools would struggle to accommodate such a process.

Notwithstanding the elegance of the 'second generation' model (Fig. 2.10) the complexity of the framework can be 'perplexing to the uninitiated' (Nussbaumer 2012). In a review of educational research based on Activity Theory, Nussbaumer notes how studies often fail to apply principles and constructs indicating the researchers' lack of theoretical understanding or, "…a sense of uneasiness about its underpinning principles and practical application" (*Ibid*: 2012:46).

Other limitations

The experience of conducting this research confirms the suggestion of McNicholl & Blake (2013) that Activity Theory underplays forces at work in the activity system at both the macro and micro level.

Firstly, macro socio-political structures may influence aspects of activity systems such as the division of labour in ways that are not fully investigated. The influence of academy chains for example is not explored by this analysis because it was not raised in the interviews. At the micro level: "…social class, gender, race and even the influence of one's own psychology are not afforded a 'distinctive ontological status' … but tend to be subordinated within the configurations of an activity system" (*Ibid*: 287). The way in which subjects react to situations may depend as much on their character or their psychology, as on the mechanics of the system. Equally, the quality of personal relationships will have a critical influence on learning in any system (Elliot-Kemp & Rogers 1982) yet these are subsumed within questions of culture and subliminal rules.

Interviewing within the framework

The research takes a qualitative, phenomenological approach (Marton 1981) to explore the ways in which subjects experience the phenomenon of developing a more sustainable school. Framing this within an activity system (Engeström 1999) facilitates a thorough investigation across the research setting. This is corroborated by interviewees who, at the end of each interview, claim that the framework has indeed covered every aspect that they could possibly think of in relation to their EE/ESD activity. Furthermore, the gaps in interviewees' responses can be as informative as the things they chose to share; for example, noting that there is nothing said in relation to rules and culture is a fair indicator of a school that is comfortable in the 'discreet' or 'dutiful' category (5.2.2).

The danger of using the activity system framework (Fig 2.10) is that elements of the system are approached in isolation although connections can be retraced through the transcript. Conversely, the need for a systemic perspective has the drawback of limiting in-depth analysis of specific issues. The semi-structured interview format facilitates probing where points of interest arise but with different issues being raised in each interview, a thorough, in-depth discussion on every theme across the whole activity system has the potential to produce unmanageable quantities of data. This situation was avoided by adhering to the framework in each interview despite the inevitable digressions of each interviewee.

A facilitated 'change laboratory' process over several months, as initially envisaged for this enquiry, would allow a school research team and its sub-groups to investigate themes in greater depth before bringing them together again. This however raises the issue of the amount of staff time required for a thorough activity system analysis.

The question guide approach, used in this enquiry, could be applied by a researcher across a sample of staff members at mutually agreed times. This would be followed up with a scheduled 'in-service training' workshop so that the issues raised could be discussed and clarified more widely and teams allocated to tackle or monitor emerging contradictions. In this way an Activity Theory analysis could be conducted with the minimum of disruption.

5.3.2 Dilemma analysis

The exercise described by Winter (1982) confirms the extent to which respondents experience the contradictions identified in the analysis. Winter assists further in characterising the nature of these contradictions, describing them as *judgements*, *ambiguities* or *problems*. This does not locate the strategic level of the contradiction, only its degree of intractability. The hierarchy of contradictions identified in Activity Theory (Engeström 1987) on the other hand helps to locate contradictions in the system although it does not describe their severity.

A more efficient approach would be to use both of these categories in a streamlined, three-stage process of: *identify – assess – locate*.

(a) Identify – run the dilemma analysis exercise as described in 3.2.6

(b) Assess – characterise the nature or seriousness of each contradiction using Winter's categories: *judgements; ambiguities; problems*

(c) Locate – assign the level of the contradiction in the system using Engeström's hierarchy: *primary; secondary; tertiary; quarternary*

At this point, the most relevant personnel can be assigned to co-ordinate the management of the contradiction and a strategy can be agreed on whether this is an issue of judgement, monitoring or a candidate for 'expansion'.

This approach would be more likely to engender expansive learning than an approach involving a checklist of actions. The question here is *how* and with *whom* has the contradiction been confronted rather than asking whether a generic solution has been applied.

5.3.3 ESD 1, ESD 2 and Activity Theory: a contribution to theory

The concept of ESD1 and ESD 2, first described by this researcher in an EdD assignment and subsequently published (Vare & Scott 2007; 2008), has attracted considerable attention with almost 100 citations listed for the 2007 paper. The paper's value lies not in a description of any new situation but in outlining two existing dimensions of ESD and suggesting a heuristic for understanding the relationship between them. The strength of this concept is its apparent simplicity although it would benefit from further theorising. Activity Theory on the other hand is complex and 'perplexing' (Nussbaumer *op. cit.*) yet it has immense potential for EE/ESD research.

Where expansive learning takes place it provides a living example of 'learning our way forward' (Foster 2008), a process of struggles and breakthroughs as Wertsch describes:

> "(Vygotsky) viewed development not as a steady stream of quantitative increments but in terms of qualitative transformations or "revolutions" associated with changes in the psychological tools" (Wertsch 1985: 79).

Managing and, where possible overcoming, contradictions is not only how systems develop, it is the habit of a sustainable, resilient organisation; it exemplifies ESD 2. However, as Foster reminds us, we often resolve contradictions in favour of current priorities; a rational response if problems are conceived narrowly. In order to grasp the wider implications of our decisions, we need to conceive of problems more widely; this requires a systemic view and scientific understanding, which is the role of ESD 1.

According to Vygotsky (1978) Cultural-historical Activity Theory allows us to understand knowledge as something that is constructed by and resides within the activity system:

> "Accordingly, knowledge can be seen as part of object-oriented and artefact-mediated activity. Importantly, sense and meaning are characteristic of activities as a whole rather than of actions in themselves. While tacit operations that constitute actions are embodied in individuals, they have their origin in mimetically copied or routinized culturally meaningful action and therefore constitute a crystallized form of social action" (van Eijck & Roth 2007).

This passage, from a website for Canadian teachers, illustrates the nature of Activity Theory discourse. The language may obscure meaning for those who are new to these concepts yet this passage does speak to the relationship between ESD 1 and ESD 2.

When peer-reviewing papers that have cited Vare & Scott (2007), it becomes apparent that writers often see ESD 1 'content' negatively compared to the ESD 2 'process'. The passage above helps to overcome this misunderstanding. If ESD 1 constitutes 'routinized culturally meaningful action' and ESD 2 represents the activity that is directed towards the object, then both can be recognised as inextricably linked components of development/learning. In this way ESD 1 and 2 may also help to clarify what can seem an opaque process for those unfamiliar with Activity Theory.

This leaves the issue of expansive learning, the emergent, often transformative outcome of overcoming contradictions. This then is *ESD 3*. It is analogous to Bateson's 'Learning 3[4]' (Engeström 2002) or the occasional insights one gains from doing research.

One cannot 'do' ESD 3 in the way that one can teach ESD 1 or facilitate ESD 2. One can simply put the conditions in place in the same way that action competence (Jensen & Schnack 1997) is developed through a directed combination of teaching and doing.

This may require further development, which lies beyond the scope of this thesis. For now it is suggested that Activity Theory can explain the inter-related nature of ESD 1 and 2, while ESD 1, 2 *and 3* can render Activity Theory and its emergent outcomes intelligible to a wider audience of educators and novice researchers. In this way schools and possibly other settings may benefit from the under-utilised potential of Vygotsky's Cultural-historical Activity Theory. This, and other possibilities for taking this research further, are outlined in the concluding chapter.

[4] However, ESD 1 and 2 are *not* analogous to Bateson's Learning 1 and 2

Chapter Six: Conclusion

6.1 Outputs of this thesis

This research explores the notion of inherent contradictions faced by education professionals working to make their schools more sustainable and analyses ways in which professionals respond to these. The research also offers contributions to the understanding and practical application of Activity Theory in relation to EE/ESD. The chief outputs of this thesis are summarised below.

6.1.1 Research findings

The data reveals a hierarchy of contradictions and dilemmas, characterised as qualitatively different ambiguities, judgements and problems (Winter 1982) or primary, secondary, tertiary and quarternary contradictions depending on where they occur in relation to the activity system (Engeström 1999). Surprisingly, these contradictions and dilemmas are not recognised readily by the teachers and headteachers interviewed.

In analysing this data further, five responses or strategies are identified that education professionals appear to adopt when confronted by contradictions in relation to developing a sustainable school (5.1). These are:

> *Unawareness*: Where staff members are not exposed to ideas or tools that challenge their practice, schools may have their own rhetoric-reality gaps. This is not 'pre-awareness' because it is not necessarily a stage in a process; rather it is a position in which individuals are comfortable to remain *vis-à-vis* sustainability.
>
> *Powerlessness*: This is where the individual's objectives are more ambitious or advanced than those of the rest of the school. It is a frustrating position that can be damaging to morale.
>
> *Accommodation 1: Denial*: Staff members who are not in a position to address contradictions themselves may avoid a sense of 'cognitive dissonance' by focusing on smaller, local issues while trusting that the contradiction will be addressed at an undetermined future point.
>
> *Accommodation 2: Satisficing*: Contradictions are acknowledged but the staff member 'dances' among competing possibilities by finding 'good enough' compromises based on professional judgements about what should be sacrificed in order to preserve that which is important to them.
>
> *Expansive learning*: Where contradictions are 'worked through' by expanding the system, possibly changing the object of the system, to overcome the contradiction.

Further analysis of the data leads to the proposal of four positions that schools appear to adopt *vis-à-vis* sustainability (5.2.2); these are:

> *Discreet*: Such schools run one or more 'green' projects, such as recycling or energy saving, not linked to the curriculum and usually focused on volunteer student action.
>
> *Dutiful*: Schools that use a framework such as Eco-Schools or the NFSS, diligently working through the criteria with minimal impact on the curriculum.

Dynamic: The leadership of these schools takes EE/ESD seriously recognising its objectives as important and legitimate outcomes for their students.

Diffuse: These schools are learning organisations that confront the professional contradictions presented by integrating EE/ESD into everything the school does.

An important feature of these four positions is that they do not necessarily suggest *progression*, rather they are approaches adopted by schools.

The research also offers an empowering vision of schools as autopoietic system (5.2.3); i.e. as both products *and* producers, suggesting that social reality is not as inevitable as it seems. By confronting contradictions, educators demonstrate the adaptive capacity required by young people if they are to engage in remodelling their world.

In bringing together a two-sided conception of ESD (Vare & Scott 2007) and Cultural-historical Activity Theory, both appear to have explanatory benefits in relation to the other. ESD 1 can be described as the skills required to take action within an activity system with an emphasis on using mediating artefacts in pursuit of an object. ESD 2 on the other hand demands learning in the often less visible elements such as rules and culture and division of labour that are equally powerful and necessary in bringing about change (5.3.3).

Engeström 's (1999) concept of *expansive learning*, overcoming contradictions by expanding the object of the system, is a process that might be described as *ESD 3*. This is an emergent quality that cannot be foreseen although conditions, chiefly cultural conditions such as openness to learning, can be put in place to facilitate this emergence. This concept may require further development, which lies beyond the scope of this thesis. For now it is suggested that Activity Theory can explain the inter-related nature of ESD 1 and 2, while ESD 1, 2 *and 3* can render Activity Theory and its emergent outcomes intelligible to a wider audience of educators and novice researchers.

6.1.2 Research methods

In adopting an Activity Theory framework, this research sought to bridge the divide between the analysis of individual (psychological) and organisational (sociological) perspectives in order to achieve an analysis of the teacher-in-context. This conceptual framework is not prescriptive in relation to research methods; indeed the degree of freedom afforded the researcher in the literature represents an acute lack of guidance on data collection methods.

Despite this lack of guidance, Engeström's (1999) description of a 'change laboratory' resonates with the researcher's professional practice; it was therefore selected as the preferred approach. This, however, proved cumbersome to implement and contributed to the difficulties encountered in attempting to engage institutions in this research. This drawback led to the development of a resource-efficient qualitative interview process that applied an Activity Theory framework to school-based research with minimum disruption (5.3.1). This qualitative instrument may well have utility in further research in schools and more widely.

The combination of dilemma analysis (Winter 1982) with an Activity Theory framework has provided a three-stage process that (i) *identifies* contradictions using Winter's questionnaire method; (ii) *assesses* them according to Winter's categories (judgements; ambiguities; problems); and (iii) *locates* them within an activity system using Engeström's hierarchy: *primary; secondary; tertiary; quarternary* (5.3.2). Again, this may have wider applications.

6.2 Further research

6.2.1 Beyond the thesis

The principal research instrument, the question guide, offers a 'guided tour' of the school's activity system, which, *inter alia* reveals examples of expansive learning. Building directly from this, a further study could start with the *identify – assess – locate* process of dilemma analysis. This would be followed up with one-to-one or focus group interviews with the explicit aim of revealing examples of expansive learning.

Observing at close quarters the strategies that teachers adopt in resolving contradictions could reveal more general strategies for approaching 'wicked problems' in education (Bore & Wright 2009) while enhancing the school's adaptive capacity by identifying how it is already 'learning by expanding' so that the process could be extended across the activity system.

Linked to this proposal, the research lends itself to a comparative study, possibly between different jurisdictions in order to reveal the influence of macro-level socio-political structures that might otherwise be overlooked (McNicholl & Blake 2013).

6.2.2 Investigating Position 4 'diffuse' and Position 7'good' education

The similarity between the model 'positions' of a *diffuse* sustainable school (5.2.2) and *good education* (Biesta 2009) demands closer scrutiny. Among the sample schools, some simply aim to save money but others maintain a strong ethos of care that extends well beyond the school budget. It would be instructive to investigate schools that take sustainability seriously against Biesta's tri-partite model of school purposes. Much EE/ESD discourse has either sought to demonstrate how it can address the narrow 'standards' agenda (DCSF 2010) or it has flattered itself that sustainability is significant enough to counter broader educational policy. This research would compare EE/ESD with a thoughtful 'mainstream' set of educational criteria.

6.2.3 Handing over the tools

The research instruments and framework used in this research have wider applications beyond EE/ESD. Specific opportunities may arise in answering the increasing demand for school-based research that has arisen due to the growth of teaching school alliances (DfE 2010). This may well focus on the 'raising standards' agenda and 'narrowing the gap' between high achieving pupils and those from disadvantaged backgrounds but each agenda brings its own contradictions and demands for expansive learning. The 'lighter' tools developed within this enquiry could have a role in bringing Activity Theory to more schools.

6.2.4 Theoretical underpinnings of ESD 1, 2 and 3

In contrast to the empirical surveys and practical applications above, the potential link between *Activity Theory* (Engestrom1999) and *ESD 1 and 2* (Vare & Scott 2007) requires a theoretical study, particularly in light of the proposed *ESD 3*. ESD 3 is transformative because expansive learning may represent a shift in the object of an entire activity system, possibly redefining its purpose. If this is possible at the school level, it may have profound implications for education policy. Such a concept requires further philosophical investigation.

In describing expansive learning, Engeström (2002) cites Gregory Bateson's (1982) concept of 'Learning 3' (1982). Sterling (2001) draws on Bateson's Learning 3 in defining the transformative learning required for the 'healthy emergence' of a sustainable society. The concept of emergence (Clayton and Davies 2006) is itself a potential area of investigation in establishing the nature and philosophical underpinnings of ESD 3. These are promising starting points for this enquiry.

6.3 Closing thoughts

Reflecting on this thesis it seem that those who promote EE/ESD have set their ambitions unrealistically high and yet not high enough. EE/ESD is a minor feature on the educational landscape yet its discourse embraces the most significant challenges of our times.

If we are to make any headway – and our un-sustainable condition demands that we try – then we had better align ourselves with those currents in education that best reflect our EE/ESD principles (the term 'principles' suggests that we need to go beyond Forest Schools or Eco-Schools as such activities fit within the most conservative visions of education).

Notwithstanding the imperative to survive, it is a mistake to assume that education should reflect sustainability principals *above all others*. From Mills, who advises that only by inviting criticism can we improve our own ideas, to Berlin's caution of the dangers of proposing a 'final solution', not to forget the professionals in this study who juggle competing priorities, we are well-served with warnings about defining too closely the criteria for a bright green future. Orwell's words on orthodoxy should be a watermark in all our manifestoes.

Yet there *are* real struggles. Currently education appears to be in thrall to a neoliberal agenda. The success of that same agenda is undermining our social-ecological systems; in seeking to commodify and monetise every aspect of life it denies emergence, evolution and much else that enriches the human condition. People created neoliberalism and people will change it as they recognise that even the interests of elites are undermined by its dominance.

If education is to help facilitate this change, it will happen because there is widespread political support for this, something that will only come about because of an informed, critical society. Education cannot, *should* not, simply aim to change society but in an autopoietic system, the very act of engagement brings about change. The direction of each contribution *is* the responsibility of every educator. This is not about pupils being dutiful conservers of energy but critical thinkers with a growing sense of their (respons)ability to effect change.

For those educators who take this role seriously, the very act of confronting the contradictions that they encounter will provide a model for the skills and dispositions required in a society that chooses *not* to support the destruction of our life-support systems through a failure to think critically.

(44,337 words)

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Personal Communication:

Ann Finlayson, SEEd

Janice Lawson, DCSF

Elsa Lee, University of Bath

Steve Oomittuk, City of Point Hope, Alaska

Appendix I: Dilemmas identified by Berlak & Berlak

Control set:

1. whole child v. child as student
2. Teacher v. child control (time)
3. Teacher v. child control (operations)
4. Teacher v. child control (standards)

Curriculum set:

5. Personal knowledge v. public knowledge
6. Knowledge as content v. knowledge as process
7. Knowledge as given v. knowledge as problematical
8. Learning as holistic v. molecular
9. Intrinsic v. extrinsic motivation
10. Each child unique v. children have shared characteristics
11. Learning is individual v. Learning is social
12. Child as person v. child as client

Societal set:

13. Childhood continuous v childhood unique
14. Equal allocation of resources vs differential allocation (allocation)
15. Equal justice under law v ad hoc application of rules (deviance)
16. Common culture v sub-group consciousness

Berlak & Berlak (1981)

Appendix II: Summary information on the schools involved in this study

Valley Secondary is a large school with 1,400 students on roll, including 370 in the sixth form. It has Specialist College status in Technology and Languages and converted to an academy in March 2011. It recruits students from over 40 feeder primary schools. The proportion of students entitled to free school meals is well below the national average as are the proportions of students ethnic minorities.

It's Ofsted score for overall effectiveness slipped from Grade 1 (Outstanding) in 2009 to Grade 3 (Satisfactory) in 2012. This has had an impact on staff morale although the school website puts a brave face on its achievements. No mention is made in the reports of work on sustainability or environmental projects.

Valley is an *International Award School* that has exchange programmes with schools in China, France and India that it uses to support learning and global citizenship.

The school's ten aims include:

- Equipping students for a rapidly changing technological world
- Fostering an atmosphere of caring, responsibility and mutual respect
- Developing partnerships with students' families, the world of work, and local, national and international communities

Broadreach Secondary is a single sex grammar (selective) school drawing high-achieving boys from a very wide area. It has 570 on roll plus 250 in a co-educational sixth form. The expected trajectory of all students is clear from the school's website: *"they leave us, seven years later… …going off to university."*

The school has Specialist College status in Languages, Science, Leading Edge Mentor School and in 2010 became one of the first new academies. All Ofsted reports have judged the school Grade 1 (Outstanding).

As well as stressing tradition and academic achievement, the website states that the school promotes citizenship "through the ethos of the School, through PSHE and assemblies." There is a partner school in Uganda and students regularly fundraise for a local charity of their choice. Twenty clubs are mentioned, none with an environmental theme.

News items on the website comprise one on cricket, two on rugby and one about a sports-based fundraising event for a rugby tour.

Royal Secondary has 450 students and no sixth form. It serves a wide rural area, recruiting students from a large number of primary schools. The proportion of students eligible for free school meals is well below the national average. It achieved Performing and Visual Arts College Status in 2005 and converted to an academy in August 2011.

In the past it has attained Healthy Schools status and in 2006 was awarded the British Council International School Intermediate Award.

The Ofsted inspection in 2008 judged the school's overall effectiveness as Grade 3 (Satisfactory). In 2012 it received the same grade although on the report stated: *This is a satisfactory, but improving, school*. These reports make no mention of any curriculum or enrichment work on sustainable development, environment or outdoor-related topics.

The school's *Values and Vision* document states that its students *"believe in themselves and contribute to the development of others, both in school and beyond."*

The document makes specific mention of teaching strategies that will *promote cross-curricular learning* and its aspirations for senior leaders and Governors include: *"Review, revise and introduce systems, procedures and activities which promote sustainability and reduce the impact of its operations on the wider community."* The document also states: *"staff feel part of a 'learning community', and are reflective in their own learning."*

Farm Secondary is a popular comprehensive school serving a largely white middle class locality. It has 1,000 on roll plus 280 sixth formers. The proportion of students eligible for free school meals is well below the national average. It has Specialist College status in Technology, became a training school in in 2006 and is an extended school leading the local extended schools partnership. It's last two Ofsted inspections judged the school Grade 1 (Outstanding); the report also noted: *"Students learn to care for each other and for their school and world environment through their work on the 'People and Planet' group."*

The school's webpage on extra-curricular activities links to clubs and societies where 'EcoSchool' is highlighted. This is surprisingly well-hidden bearing in mind that the school recently achieved Green Flag status, the highest level of EcoSchools award. The school has links to a school in Kenya, to which it donates money and resources.

Newhouse Secondary is a girls' comprehensive school with no sixth form. There are 730 students on roll and many brighter pupils who would otherwise attend this school are 'creamed off' by two local girls' grammar schools. The proportion of students eligible for free school meals is above the national average as is the proportion with special educational needs. About one-fifth of students are from minority ethnic groups and many speak English as an additional language. This is a Specialist College in Arts (Art, Drama and Dance); it has not converted to an academy.

In 2009 Ofsted inspectors judged the school Grade 3 (Satisfactory) although an inspection in 2013 judged it Grade 4 (Inadequate). The latest report states that students have not been achieving as well as could be expected although the recently appointed head teacher is making improvements. Achievements are strongest in Science and this good practice is beginning to be shared more widely across the school.

The news page on school's website highlights a broad range of sports, fund-raising and arts related activity from the past three years including an 'Eco Week' held in 2011.

Kings Secondary is a large comprehensive school with 1,050 students plus 200 sixth formers; most have White British heritage. The school has specific provision for its larger than average number of students with special needs. The proportion of students eligible for free school meals is lower than average. It has Specialist College status in Science and has not become an academy.

The most recent Ofsted report judged the school at Grade 2 (Good) and even highlights the fact that the school has "*eco and healthy school status"* in its introductory remarks. Unusually the home page of the school's website has a link to 'Eco Council' and the headmasters introduction mentions the school's achievement in being awarded the Green Flag Ambassador Award *"Eco School's most prestigious accolade."* The school was on at least its third Green Flag at the time of the interview.

Manor Primary is a large suburban primary school with 580 pupils aged 4 to 11; almost all have White British heritage. The proportion of pupils eligible for free school meals is below average.

A recent Ofsted inspection judged the school as 'Good', which indicates a steady improvement since the current headteacher came to the school (a few weeks before it was judged 'Satisfactory'. The inspectors also noted the fact that the school has been awarded an Eco Schools Green Flag.

The home page of the school's website includes a link to the new Eco School Action Plan which can be downloaded from the Eco Council webpage. The school makes extensive use of its grounds and has won awards for its recycling work. It also has international links across Europe through a Comenius project and a strong link with a school in China.

Thatchwell Primary is a small school with 180 pupils aged 4 to 10; most are White British with the largest minority group having Traveller heritage. The proportion of pupils eligible for free school meals is below average. It is a Church of England school with a strong Christian ethos.

The school has been judged Good by the last two Ofsted inspections, both of which have mentioned the school's Eco School awards – it achieved a Green Flag since the research interview.

The school's website has a prominent link to its 'Eco' page on the homepage. The school has well-developed school grounds for Forest Schools work as well as growing vegetables which it sells to its catering providers.

Park Primary is a large primary with just over 400 pupils aged 4-11, most have White British heritage. It was judged Good in its last Ofsted report (Satisfactory before that). The Ofsted report mentions the school's Green Flag award although the school's website underplays its environmental credentials. The school's mission includes the aspiration to ensure that *"all children may learn successfully and become caring, responsible citizens."*

Only in a downloadable document on teaching and learning is there a paragraph that mentions that the school is *"recognised as an outstanding contributor to environmental issues"* and that *"many other schools visit… …to establish what outstanding practice looks like."* The school was on its fifth Green Flag at the tie of the interview.

Abbey Middle School has 280 pupils aged 9-12; most have White British heritage. It is a Church of England school with a strong Christian ethos, something that is highlighted in the school's Ofsted report, which judges the school to be Good. The Ofsted report goes beyond a cursory mention of the school having been awarded a Green Flag; under the section on 'outcomes for pupils' it states: *"The school's eco award and its good focus on growing vegetables and composting waste benefits learning effectively."* The report also highlights the school's links with a church and school in Zambia (they also link with a Russian school).

On first impression, the school website makes no mention of its environmental work or EcoSchools award but at the bottom of a long list of policies is a Sustainability Policy. This is clearly based on the DCSF National Framework for Sustainable Schools with its subtitle *'A Commitment to Care'* and sections on each of the eight 'doorways'.

New Primary is a 'first school' with 370 pupils aged 3-9. It has recently moved to a new site (a PFI new build) although it has maintained its tradition of being a successful Eco School having been awarded four Green Flags and Ambassador Status.

The latest Ofsted report judges the school to be 'Good' and highlights its Eco School status. In its overall description of the school the report states: *"The school has wholeheartedly embraced community cohesion and the need to promote pupils' environmental awareness. 'Sustainability Education' is now a strong part of the pupils' activities, which extends beyond the classroom to activities in the school and local area, and into global links with a school in Sierra Leone."*

The school website begins with the motto: *Caring, Sharing, Preparing for Life,* which could be read as a succinct definition of sustainable development. The work of the Eco Council and Eco Club is found on the Clubs and Councils page. New Primary pioneered the Forest School approach in the county and still runs Forest School programmes for all pupils.

Strawhill Primary is a small rural first school with 45 pupils aged 4-9, nearly all of White British heritage and below average eligibility for free school meals.

The last Ofsted inspection judged the school 'Satisfactory' finding progress at Key Stage 2 to be less than might be expected. The report mentions that the school is on its third Green Flag and that pupils *"talk with affection about their involvement in the school council and the Eco Club promoting recycling at the school."*

The school website makes no mention of its EcoSchool award although its downloadable prospectus highlights the school's outdoor provision: *"...we are privileged to have an environmental study area, vegetable garden, playing field, adventure play area, a hard play area and Forest School area."*

Appendix III: Notes on the Interviewees and their interviews

Valley Secondary

Sarah: A Science teacher and now a 'Learning Leader' for Year 8 students who has worked at this school for over three years. Runs a student energy project introduced by a local charity. Was involved in sustainability projects at an earlier school.

This was the first interview of the study, it was conducted over the telephone while I made notes. While Julie said she liked the way that the interview was outlined at the beginning and it was clear what I wanted, I felt that this format was not ideal as it was difficult to probe further or go back over ground we had covered and was keenly aware of the amount of time we were spending on the phone.

Amy: An experienced Design and Technology teacher who is sympathetic to sustainability and brings environmental thinking into her lessons but is not actively involved in environmental or sustainability related projects in the school.

This was the last interview of the study selected because Valley School represented a school that appeared to working well on sustainability but with significant challenges. I was also keen to visit this school as the first interview was the only one I had conducted by telephone. The interview itself was conducted in a busy classroom which had the advantage of my being able to see students working on the project that Amy was describing although it did mean that we were interrupted and the background noise made it difficult to transcribe the recording.

Broadreach Secondary

Barbara: An experienced teacher and Head of PSHE and Citizenship, Barbara leads the energy project in her school; other than this she does not have significant experience of working on sustainability issues *per se*.

The interview was held in her office away from any distractions; it was my first face-to-face interview for this research and I felt my lack of exposure to the possible range of responses and Barbra's tangential interest in the subject meant that our discussion was not as revealing as might have been the case if this interview had come later in the process. Barbara was one of four teachers who did not return the Perspective Document.

Royal Secondary

Michael: A member of the senior leadership team, Head of Science and a teacher at this school for 29 years, Michael appeared to be very comfortable in his niche and took additional roles in his stride, such as the energy project introduced by a local NGO.

Michael had pre-read the question schedule and launched straight into the interview before I had asked any preliminary questions. This was the shortest interview of the fifteen that I conducted and did not reveal very much in the way of insights into actual or potential problems other than the usual pressures of time.

Farm Secondary

Bob: A geography teacher who has been working here for four years. He has a background in outdoor/environmental education.

This was a long interview conducted in Bob's classroom after school. Bob had pre-read the schedule but was happy to range broadly over topics, which gave this the feel of a

professional discussion among colleagues. This was the first interview (of several) to reveal serious differences in priorities among school managers. Although, like the other interviewees, Bob agreed with the content of the interview transcript, he was unhappy with the way that I had transcribed his speech using abbreviations and 'ums' and 'ers' saying, "It makes me sound a bit thick."

Newhouse Secondary

Louise: This was Louise's second year as a Science teacher. Before that she ran her own business for ten years in the hospitality sector, something that informed her views on this school, education management in general and sustainability.

The interview was conducted in a vacant classroom during her non-teaching time. It went very well and while Louise may have appeared to go 'off message,' her reflections alerted me to a number of issues, particularly in relation to school management, that primed me for subsequent interviews.

Melanie: After Louise's interview it seemed inevitable that I would go back to find out more about this school's approach to sustainability from another perspective. Melanie is another recently qualified teacher with two years' experience as a Design and Technology teacher with a focus on Food Technology. She subsequently won an award for her professionalism.

The interview was conducted in her classroom at the end of the day and, like Louise, Melanie spoke freely about the situation in the school. In fact she has a strong interest in sustainability so this wasn't the alternative view I was looking for but her perspective was not that of a sustainability leader plus I felt that her sympathy for 'the cause' made her critique all the more meaningful. Melanie did not return the Perspective Document.

Kings Secondary

Cheryl: An English teacher, Cheryl has been at the school for six years and she has been involved in the school's Eco Committee for at least four of those years. She was invited to attend an Eco Committee meeting by the Deputy Head who was running it at the time. At the same time she joined a global education trip to Gambia and she claims it was this that really captured her interest in wider sustainability issues.

The interview was held in the staffroom during a quiet afternoon although some staff members did come in and out, which I felt helped to keep the interview on a formal footing so that this was one of the less revealing interviews.

Manor Primary

Philip: As headteacher of this school, Philip appears to be very much in control of the sustainability agenda. In previous headships and senior management positions he made good use of the EcoSchools programme to raise pupil interest and bring about wider school improvement, along with many other schemes including healthy schools, the arts and international links.

Like Michael, Philip seemed well-prepared and launched into the interview with gusto, discussing his past roles and the fact that he taught at this same school many years earlier. His long experience and willingness to share his views made this interview particularly useful in relation to issues of wider education policy and its interface with daily practice. As a head he is certainly busy and I had to send follow up e-mails in order to gain his acceptance of the interview transcript and later, his response to the Perspective Document.

Thatchwell Primary

Heather: Having been acting head for a year, Heather has recently taken on the role of headteacher and appeared to be enjoying the job (she is singled out for praise in a recent Ofsted inspection carried out after this interview). Her background is in music and she has a keen interest in sustainable development. Although she drives the sustainability agenda in her school, Heather sees it primarily a means to engage pupils, their families and the wider community.

The interview was conducted in Heather's office in an informal, friendly atmosphere. Being the head like Philip, Heather was able to offer a strategic perspective on the impact of policies and school inspections. Our interview was followed by a tour of the school grounds including an impressive Forest School area.

Park Primary

David: Key Stage Two Assistant Head, David currently teaches Year Four but has been a Year Five and Year Six teacher in the past. He has been teaching at this school for 20 years. David started the sustainability projects in the school ten years earlier and continues to lead this work. His interest started when he attended a talk on composting at a local environmental education centre where he was also given a green bin and worm bin.

The interview was held in an empty classroom and the discussion continued as we walked around the school grounds. Although modest about his own role (he seemed almost bemused at the level of interest that his work in this area has attracted) David was eager to share the school's achievements.

Ken: Park Primary's work seemed so impressive that I felt it called for further study. Ken is maths co-ordinator for the school and has taught there for several years. He is highly supportive of the sustainability agenda led by David although feels that he is typical of the staff there.

The interview was conducted in the staff room, which was mostly empty at the time so we could talk freely. His perspective as a 'mainstream' teacher was useful in giving a fuller picture how sustainability pervades the school and relates to the wider school culture.

Abbey Middle School

Julie: Although we didn't discuss how long Julie has worked at this school, it was clear from the interview that she has been there for a number of years and takes a historical perspective on the theme of teaching about/for sustainability along with other issues. Her manner was that someone who had seen it all before, a perspective that could both amuse and sadden her.

The interview took place in an open-plan classroom after school. There were a number of interruptions and pupils then assistant staff passed by and took their leave; despite this Julie was not shy to discuss her views on aspects of school management albeit in a coded manner. Julie did not return the Perspective Document.

New Primary

Ellen: Started working as a supply teacher eight years ago and was not full time when the then head gave her responsibility for co-ordinating 'green' activities. Since then she has become full time and remains the school's sustainability co-ordinator.

We met in Ellen's office on my second visit to the school (the first attempt to meet was abandoned after she was called to hep interview new job applicants). The audio record of this interview was inexplicably wiped so the 'transcript' was drawn from hand-written notes and memory (two days after the interview). As with all transcripts, it was checked by the interviewee.

Strawhill Primary

Rebecca: Without mentioning how long she had worked there, it was clear that Rebecca has been at the school for over ten years. She now works part-time at school and is Geography Co-ordinator. She has a background interest in ecology and sustainable development.

The interview took place in the staff room after school with one or two interruptions as staff left. Like Julie, this didn't deter Rebecca from speaking her mind about issues that concerned her in relation to the school management and the recent Ofsted inspection. It was also her birthday and she generously shared her cake during the interview. Rebecca did not return the Perspective Document.

Appendix IV: Statements on EE/ESD in Hansard 1968-2005

Year	Date	House (C/L)	Type (W/S)	Topic or Bill	Principal Actor(s)	Summary
1968	9 July	C	W	Education and the Countryside	George Lawson MP	Plans to promote the understanding of the countryside in Scottish schools following establishment of the Council for Environmental Education (CEE)
1973	11 Apr	C	W	World Environment Year	Tam Dalyell MP Geoffrey Rippon MP	Question on celebration plans. Wall charts for EE in schools and book on pollution. Mentions Stockholm conference
	13 Nov	C	W	Environmental Education Advisers	Ronald Bray MP Norman St.John-Stevas	Asked for list. List provided of 44 education authorities which employ a full-time environmental education adviser
1974	14 May	L	S	Control of Pollution Bill	Baroness Young	Highlighting the work of Keep Britain Tidy and CEE that is "educating teachers on how to show children how to behave"
1975	17 Jan	C	S	Defence Lands and National Parks	Hugh Rossi MP	Suggests EE be promoted in parks and outdoor centres including school visits to "produce regard for the treatment of the national parks" among the young
	29 Oct	C	W	Nursery Education	Fred Mulley MP	It is for LEA and schools to decide on curricula matters, including EE, not Parliament. CEE cited as member of the Tree Council
1978	16 Jun	L	S	Inner Urban Areas	Lord Sandford	Declares interest as president of CEE, "which has been very handsomely treated by the Department"
	12 Dec	C	W	Environmental Studies	Janet Fooks MP Margaret Jackson MP	Steps to encourage environmental studies? HMIs offer advice and guidance. Dept. has made papers from 1977 Tbilisi EE conference available to LEAs; handbook to follow. "The curriculum in schools, however, remains a matter for individual local education authorities and the schools themselves"
1979	24 Jan	L	S	Social and Industrial Policy Making	Lord Craigton	Amazed and 'horrified' at how far this country has to go to provide adequate EE. " Unless we deal with environmental education as a priority, the next generation will not know what they have to face"
	25 July	L	W	EE: Government Publications	Lord Chelwood Baroness Young	Asked for details on Government book on EE. Working paper on EE issued as part of 11-16 curriculum discussion series. Survey report on EE forthcoming in light of Tbilisi recommendations
1980	15 July	C	W	Voluntary bodies	Iain Sproat MP	Question on grants given. Answer includes grant to CEE

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1981	27 Feb	C	W	Scottish History (Tuition)	Gordon Wilson MP Alexander Fletcher MP	Scottish committee on env. studies of the Consultative Committee on Curriculum is producing a series of short courses on env. studies for the use of teachers, including on Scottish history
	27 Apr	C	S	Wildlife and Countryside Bill	Kenneth Marks MP	Pays tribute to the work of Government and voluntary agencies (including CEE) in educating people about countryside protection and hopes they will not suffer due to education spending cuts
1983	15 Feb	L	S	National Heritage Bill	Unknown	Responsibilities of schools, teachers, heads, LEAs and advisers – [Incomplete data available]
1984	14 Feb	L	S	Education (Grants and Awards) Bill	Baroness David	Withdrawal of an amendment that specifies in any year, 20% “of any such expenditure shall relate to projects dealing with EE”
1985	7 May	L	S	Local Government Bill	Baroness Steadman	Concern that without special support, successor districts to the Greater London Council will not be able to continue EE, etc.
	12 Jun	L	S	Wildlife and Cntryside Amendment Bill	Earl Peel	Seeking to promote marine nature reserves, cites their influence on the development of environmental education programmes
1986	15 July	C	W	Litter	Angela Rumbold MP	Keep Britain Tidy includes local poster competitions in its EE programmes used in schools throughout the country
1987	7 Mar	L	S	Environmental Projects	Baroness Nicol Lord Skelmersdale	Question on level of grant to Watch acid rain project and recommendation that young people and schools be more involved in the European Year of the Environment
	6 Apr	C	S	Social and Economic Policies	Richard Caborn MP	Cites an HMI report on Sheffield schools commending the attention given to health education, home studies and EE.
1988	17 Mar	C	W	Departmental Grants	Angela Rumbold MP	CEE grant of £22,680 listed among other voluntary agencies
	18 Apr	C	W	Personal, Social and Health Education	Andrew Smith MP Angela Rumbold MP	Question on advice given to schools on PSHE. This will include health, careers, political and environmental education, and economic awareness and be covered by cross-curricular themes
	18 Apr	L	S	Education Reform Bill	Lord Craigton	Concern that curriculum specifies a broader vision of "society" to include: “the rest of the planet, this Bill fails to acknowledge, except by default, all the environmental considerations that are now known to be essential to the survival of mankind”
	3 May	L	S	Education Reform Bill	Lord Hatch of Lusby Lord Craigton Nora David + others	Debate in favour extending general aims to emphasise caring for the earth and interdependence of nations; rejected: this constrains the general tone of the curriculum aims. Calls for EE to be mentioned among subjects; rejected: EE to be cross-curricular

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1988	21 Jun	L	S	Education Reform Bill	Lord Hatch of Lusby	Notes that environmental and multicultural education included “up to a minor point” but nothing on development education.
	20 Dec	C	S	National Curriculum	Peter Hardy MP Angela Rumbold MP	Concern for full primary curriculum; HMI claims it is “possible, and most desirable, for primary schools to manage their affairs to include such matters as environmental and health education”
1989	1 Feb	L	S	Pollution and Environment	Lord Ritchie of Dundee Lord Craigton Nora David + others	Concern that EE is timetabled and takes ‘the right form’. “We cannot have knowledge without moral responsibility, and that is what young people must learn by getting out and discovering the environment for themselves”
	16 May	C	W	Open University	Paul Flynn MP Mr Jackson	Request for statement on EE at OU. “Courses about or related to the environment are available in the university's undergraduate and continuing education programmes.” Research also supported
	26 July	L	W	National Curriculum: Marine Environment	Lord Kennet Viscount (John) Davidson	Why is the marine environment missing from “Curriculum Matters 13”? This applies to the marine environment as well. HMI will take account of all responses to this publication
	23 Oct	C	W	UN Data Systems	Dr. Thomas Mr Jackson	Asked if UN data systems will be available to educational institutions for developing EE in UK. These are based at King’s College London and are “inappropriate for general use in environmental education at school level.”
	20 Dec	L	W	Nature Conservancy	Lord James Douglas-Hamilton	Scottish EE Council listed among supporters of merger of Scotland’s Countryside Commission and Nature Conservancy
1990	10 Jan	C	W	Environment	Dr. Thomas Angela Rumbold MP	Question on initiatives to raise environmental consciousness in schools. Environmental Education: 5–16 published and “Our Future World” by NERC
	16 Feb	C	W	Science	Dr. Thomas Angela Rumbold MP	There are 23 environmental studies courses offered by the five GCSE examining groups
	3 Apr	C	W	Environmental Education	Dr. Thomas David Trippier MP	What contribution is made to the Foundation for Environmental Education in Europe. None, it’s based in The Netherlands.
	26 Apr	C	W	Environmental Protection Education	Joan Walley MP Mr Jackson	Any assessment of environmental protection education needs at colleges and universities. No, it’s a matter for individual institutions
	30 Apr	C	W	Environmental Enterprise Award Scheme	Joan Walley MP Angela Rumbold MP Mr Jackson	What percentage of schools and colleges have participated in the scheme. 134 groups registered; 18 in 16-19 age range.

Year	Date	House	Type	Topic or Bill	Principal Actor(s)	Summary
1990	30 Apr	C	W	Environmental Protection Education	Joan Walley MP Mr Jackson	How many people undertaking qualification in this area; HE 4,400 FE 1,400 – broad range of topics covered by these
	1 May	C	W	Environmental Protection	Joan Walley MP Eric Forth MP	Any plans to review training among the workforce in this area; no plans but this will be considered in forthcoming White Paper
	11 May	C	W	Environmental Protection	Joan Walley MP Angela Rumbold MP	Lead taken by Govt. on education in this area? Geography will be major vehicle for EE; more flexibility for HE/FE institutions in future
	25 Jun	C	W	Environment White Paper	Bryan Gould MP Chris Patten MP	CEE listed among organisations making a submission on the White Paper
	8 Oct	L	S	Environmental Protection Bill	Lord McIntosh of Haringey Lord Addington	The principle of sustainable development cannot be “implemented without public consent, understanding and information.” Access to information is required to achieve SD (but amendment withdrawn)
	19 Oct	C	W	EE Study Centres	Joan Walley MP Tomothy Eggar MP	Requested list of EE Centres (a) in operation 1987-89 (b) closed or face closure within 12 months. Data not collected centrally
1991	29 Jan	C	W	Environmental Education	Jim Wallace MP Lord James Douglas-Hamilton	Will RSPB be consulted on the development and implementation of environmental education in Scotland. RSPB and other voluntary bodies are contributing to a national strategy for EE in Scotland
	13 Feb	L	W	EE working Group for Scotland	Baroness David Lord Strathclyde	Asked for Terms of Reference for working group and list of voluntary bodies appointed. Details lodged in Library in the House
	21 Feb	C	W	Geography	Jack Thompson MP Timothy Eggar MP	Concern for inclusion of inquiry skills and possible conflicts with EE. Importance of EE in Geography noted though no separate attainment target for EE. Knowledge to be emphasised over skills
	1 Mar	C	W	Departmental Policies (Environmental Implications)	Simon Hughes MP Michael Fallon MP	Has Education considered environmental implications of "This Common Inheritance"? Yes, from EE as cross-curricular theme in the national curriculum to post-experience environmental training
	5 Mar	C	W	Geography	Andrew Smith MP Michael Fallon MP	Any strategies for students to handle available geographical and environmental info? Cross-curricular advice offered in 1990. 289 responses to Geog. to be considered in drafting attainment targets
	21 Mar	C	W	Open University	Paul Flynn MP Alan Howarth MP	Welcomes OU interdisciplinary environmental education programme and will visit later in the year
	27 Mar	C	W	National Curriculum	John Battle MP Timothy Eggar MP	Discussion of environmental problems within geography and national curriculum? Attainment target on environmental geography, EE is cross-curricular theme plus science

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1991	25 Apr	C	W	Environmental Education	Paul Flynn MP Alan Howarth MP	Courses on env. protection? A matter for institutions but Government to establish expert committee on future development of environmental provision within FE/HE.
	17 May	C	W	Environmental Education	Paul Flynn MP Tony Baldry MP	Environment Department promoting EE in schools? “Environment in Trust" and "Wake Up" leaflets circulated to all secondary schools in England and Wales on publication. Dept. also supports educational materials by grant-in-aid environmental bodies
	27 Jun	C	W	National Association for EE	Paul Flynn MP David Trippier MP	How many meetings with NAEE since 1987? No meetings but regular contact. Will attend NAEE annual conference next April
	27 Jun	C	W	Environmental Education	Paul Flynn MP Michael Fallon MP	Report received from the Association of British Chambers of Commerce on the development of EE and business schools, universities and polytechnics? Yes
	28 Jun	C	W	Environmental Education	Paul Flynn MP Edward Leigh MP	Any plans for Industry Department to meet Association of British Chambers of Commerce to discuss EE? No knowledge of this
	8 July	C	W	Environmental Education	Paul Flynn MP Michael Fallon MP	Any action taken on meeting? (Raised 27 June) No but brought to attention of the committee established to advise on EE in HE/FE
	24 July	C	W	Environmental Education	Simon Hughes MP Michael Fallon MP	Terms of Reference for committee on environmental provision in HE/FE. Assess strengths, weaknesses; make recommendations to institutions and validating bodies. Chair to be Peter Toyne
	5 Dec	C	W	Open University	Norman Goodman MP Alan Howarth MP	Progress on EE in the OU? Many environmental courses; Government does not support EE specifically
	13 Dec	C	W	National Curriculum	Jack Straw MP Timothy Eggar MP	Request list of NC-related documents published since 1987. List of ‘Other publications’ includes *Environmental Education*, Sept 1990
	17 Dec	C	W	EC Meetings	Michael Heseltine MP	Announced Community fund for the environment (LIFE) for various projects including EE, training and information initiatives
1992	20 May	L	S	UN Environment and Development Conference	Baroness David	Anxiety that teachers find it difficult to incorporate EE in their teaching. The EC has agreed to promote EE in all education sectors. Hope that Rio outcomes on environment and development education will be adopted.
	4 Jun	C	W	European Council	James Pawsey MP John Patten MP	Outcomes of EC Ministers meeting? Council of Ministers adopted conclusions on EE and open and distance learning
	8 Jun	C	W	Environmental Education	Cynog Dafis MP Eric Forth MP	Will EE be part of teacher training? All ITT courses should ensure that teachers can incorporate cross-circular themes including EE

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1992	8 Jun	C	W	Environmental Education	Cynog Dafis MP Eric Forth MP	(1) Will EE be compulsory in primary and secondary levels? (2) "What efforts are being … to promote the teaching of the concept of sustainable development as part of the core curriculum?" No change to existing cross-curricular status of EE. Geog covers SD
	9 Jun	C	W	Environmental Education	Cynog Dafis MP David Maclean MP	Progress in implementing international environmental education programme? No plans as UK not part of UNESCO
	10 Jun	C	W	Environmental Issues (Scotland)	Archy Kirkwood MP Lord James Douglas-Hamilton	Documents to raise pupils' awareness on environmental issues? This is a matter for education authorities but series of leaflets listed plus summary of environment White Paper. Scotland also participating in OECD project on EE and a group chaired by Prof Smyth is currently reviewing Scottish EE generally
	26 Oct	C	W	Environmental Education (Wales)	Llew Smith Sir Wyn Roberts	Efforts to promote EE in Wales? EE is included in NC; Curriculum Council for Wales producing guidance for schools on EE; EE competition and conference in Wales; HE/FE committee on EE
	16 Nov	C	W	Environment	David Porter MP John Major MP	Progress on involving young people in environmental awareness following 1992 Earth Summit? Agenda 21 recommendations for young people already implemented in UK; informal EE supported through Department of Environment grant schemes
	27 Nov	C	W	Environmental Education	Win Griffiths MP Eric Forth MP	Provision of teacher training on cross-curricular themes, esp. EE? Many relevant subjects in NC; schools and LEAs decide priorities
	27 Nov	C	W	Environmental Education (Wales)	Win Griffiths MP Sir Wyn Roberts MP	Funding by Govt. Departments for information on EE? Support offered by variety of means, specifically info. funding not identified
	2 Dec	C	W	Environmental Education (Scotland)	Win Griffiths MP	Courses for primary teachers must include environmental studies as significant element of the course. EE included in INSET grants
1993	20 Jan	C	W	Youth Organisations	Bill Walker MP Tim Boswell MP	Voluntary youth organisations received grants to promote the personal and social education? List provided, including CEE
	22 Jan	C	W	Environmental Education (Wales)	Cynog Dafis MP Sir Wyn Roberts MP	Schools required to publish info on EE in Wales? No. Ofsted in Wales published *EE in the schools of Wales* in 1992
	3 Feb	C	W	Environment and Development Education	Cynog Dafis MP Eric Forth MP	Plans to comply with Agenda 21 and integrate env. and dev. issues into education to undertake a review of curricula to ensure a multi-disciplinary approach? Ample scope within existing subjects. Toyne Report available to FE/HE
	15 Mar	C	W	Environmental Grants	David MacLean	CEE listed as grant recipient

Year	Date	House	Type	Topic or Bill	Principal Actor(s)	Summary
1993	26 Apr	C	W	Environmental Studies	David Hichliffe MP Eric Forth MP	Plans to introduce env. studies into NC? Pupils receive this through core and foundation subjects. Geog. very relevant to EE
	10 May	L	S	Education Bill	Mr Joseph Dean	Some pupils receive no PE or EE as school lack space or facilities
	8 Jun	C	W	Environmental Education	Llew Smith MP Tim Yeo MP	Plans to implement Toyne Report? Matter for establishments. Industry asked to make their needs known to FE/HEIs
	29 Jun	C	S	Outdoor Education Centres	Michael Jopling MP Eric Forth MP	National network of LEA outdoor ed. centres at risk by LMS, etc.. Centres must learn to sell their services to schools and LEAs
	18 Oct	C	W	Environmental Education (Scotland)	Alex Salmond MP Lord James Douglas-Hamilton	What provision for EE in Scottish primary/secondary schools? EE has “permeating influence” & in Env. Studies in 5-14 programme + upper sec. SCOTVEC units. *Learning for Life* is being considered
	29 Oct	C	W	Environmental Education (Wales)	Cynog Dafis MP Sir Wyn Roberts MP	1. Guidelines for inspectors on EE? Matter for HMI. Co-ordinating body for EE? No. Countryside Commission for Wales planning this
	29 Nov	C	W	Sustainable Development	Llew Smith MP Robin Squire MP	Any response to report by the Education for Sustainability Forum? This will be considered while preparing the UK’s SD strategy
	16 Dec	C	W	Environmental Education	Win Griffiths MP	Asked for list of LEAs that employ EE advisors and those that have ceased to do so… [Further info not available on Hansard]
	16 Dec	C	W	Environmental Education	Win Griffiths MP	Will Secretary of State help increase school’s awareness of estuaries? [Further info not available on Hansard]
	16 Dec	C	W	Environmental Education	Win Griffiths MP	What progress has been made implementing recommendations of Toyne Report, Environmental Responsibility: An Agenda for Further and Higher Ed.? [Further info not available on Hansard]
	16 Dec	C	W	Environmental Education	Win Griffiths MP	Will it be made policy to ensure Ofsted inspectors comment on quality of EE? [Further info not available on Hansard]
	16 Dec	C	W	Sustainable Development	Win Griffiths MP Tim Yeo MP	Will UK biodiversity action plan implement commitment made at the UNCED on EE for sustainable development? “A component of this strategy will be the important role of EE”
1994	11 Feb	C	W	Environmental Education	Win Griffiths MP Robin Squire MP	Any guidance for schools on environmental management? Guidance in forthcoming UK strategy on sustainable development

Year	Date	House	Type	Topic or Bill	Principal Actor(s)	Summary
1994	11 Feb	C	W	Environmental Education	Win Griffiths MP Robin Squire MP	(1) Any plans for schools to have a policy on EE "guaranteeing provision and continuity between different subject areas of the curriculum" (2) encourage all schools to appoint an EE co-ordinator (3) publish guidance on teaching care for environment (4) guidance on EE on biodiversity and SD (5) grants to voluntary bodies producing resources to "promote the concept of sustainability declared at the UN Conference on Env & Dev"? "It is for the individual school to determine the character of its curriculum" No plans to fund voluntary bodies.
	11 Feb	C	W	Environmental Education	Win Griffiths MP Robin Squire MP	Will Govt. ensure EE is "subject to inspection and comment" by Ofsted? Inspections will follow the published framework
	15 Feb	C	W	Environmental Education (Wales)	Win Griffiths MP Sir Wyn Roberts MP	(1) Guidance for schools on environmental care (2) Schools EE co-ordinators (3) curriculum continuity (4) EE for biodiv. & SD? EE is addressed in the statutory subjects; schools are free to address this as they wish including in their ethos; Curriculum Council for Wales is publishing advice on EE for in-service teacher education
	15 Feb	C	W	Environmental Education (Wales)	Win Griffiths MP Sir Wyn Roberts MP	Plans to implement Toyne Report recommendations in Wales? Report went to all FHE institutions in Wales in Feb 1993. It is for individual institutions to judge how to take these forward
	30 Jun	L	S	Environmental Education	Baroness Nicol + others Earl of Arran	Plans to "co-ordinate and disseminate" EE to underpin Rio commitments? Recognised in UK strategy on biodiversity and SD. Q&A on EE funding; take-up of EC grants, nature of EE
1995	16 Jan	C	W	Environmental Education (Wales)	Win Griffiths MP Rod Richards MP	Plans to commission national appraisal of progress on EE in FE/ HE in Wales as per Toyne Report? The appraisal will take place in the 1995–96 academic year
	20 Jan	C	S	Home Energy Conservation Bill	Robert Jones MP	Announcing TV campaign and children's pack to change behaviour in households
	16 Feb	C	W	Millennium Commission	Cynog Dafis MP Stephen Dorrell	Will EE fall in remit of the Millennium Commission? Grants will mark the year 2000, guidelines to applicants are published
	24 Mar	C	W	Madagascar	Cynog Dafis MP Tony Baldry MP	Assistance to promote SD in Madagascar? Grant to WWF for protected area management and EE
	29 Mar	C	S	Education Cuts	David Faber MP	Wiltshire unjustified in claiming a funding shortfall when the county council has "so-called crucial spending plans in its budget … to continue with the employment of an environmental co-ordinator"

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	5 Apr	C	W	Education	Joan Ruddock MP Robin Squire MP	Identify Education Department's Green Minister and their work. It is Mr Squire and revised Nat Curric has extensive coverage of environmental matters; jointly organising EE conference with Dept. of Env. and considering monitoring EE in FE/HE
	30 Jun	C	W	Environmental Education (Scotland)	Ian Lang MP	Announces publication of "A Scottish Strategy for EE"; commends "Learning for Life" to all seeking a guide to Govt. policy on EE
	26 Oct	L	S	Sustainable Development	Baroness Nicol	Reminds the debate of establishment of many more groups on SD in the 1990s and need to co-ordinate information and expertise
1996	14 Feb	C	W	Environmental Education	Joan Ruddock MP Robin Squire MP	When will the Secretary of State for Education publish the Govt. EE strategy? It will be published by Dept. of Env in Spring
	4 Mar	L	W	Scotland: Grants for Environmental Work	Lord Lyell Earl of Lindsay	Question on allocation of grants to voluntary bodies. Answer includes £10K to 'Education for Sustainability Development Group'
	6 Mar	L	S	Development Policy Awareness	Earl of Sandwich + others Baroness Chalker	Debate in favour of development education (possibly learning from EE); current Government support outlined
	18 Mar	C	S	Education (School Premises)	Alan Howarth MP Gillian Shephard MP	Concern for space for recreation and EE if land is sold. Schools can be trusted to decide for themselves on these matters
	16 Apr	C	W	Education for Sustainable Development Group	Andrew welsh MP George Kynoch MP	Outputs form from ESD group in Scottish Office? Scottish Strategy for EE published June 1995. SD advisory group has ESD sub-group (Chair: Prof. McGettrick) to promote a strategic approach
	19 Jun	C	W	Environmental Education	Roy Thomason MP John Gummer MP	Progress on preparing EE strategy. Commissioned review by a secondee; a strategy for EE in England is based on her report
	13 Nov	L	S	Educational Choice	Earl of Sandwich	Speech in favour of Development Education in the curriculum
	27 Nov	L	S	Young People	Lord Holme of Cheltenham	Call for citizenship education in schools and the community to include environmental projects
1997	13 Jan	C	W	Curriculum Projects	Robert Hughes MP Raymond S Robertson MP	Asked for list of projects of Scottish Consultative Council on the Curriculum. Included *Values, Environmental Education and the School Curriculum*: Conference and Report, 1992
	17 Mar	C	W	Environmental Auditing	Martyn Jones MP Robin Squire MP	The schools environmental assessment method (SEAM) used by local authorities in EE and energy conservation. 480 eco-schools sent copies. All schools sent BRE's "The School Toolkit"
	3 July	L	W	Environmental Education: the Spiritual Dimension	Lord Beaumont of Whitely Baroness Blackstone	Steps take to ensure spiritual dimension in EE? SCAA developed guidance on environmental matters; new guidance on pupils' spiritual, moral, social and cultural development in preparation

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1997	16 July	L	S	Schools & Preparation for Adult Life	Earl of Sandwich	Speech in favour of global citizenship in schools, noting Minister for International Development's support for development and EE
	27 Oct	C	W	Energy Education	Andrew Stunell MP Angela Eagle MP	Co-ordination across Govt. on energy education? Departments with interest in sustainable development education in England, established to ensure Government action is co-ordinated
	27 Oct	C	W	Energy and Environmental Education	Andrew Stunell MP John Spellar	Review of Defence Department relations with NGOs that plan energy & EE? Training is contracted when required ans kept under review
	7 Nov	C	W	Energy and Environmental Education	Andrew Stunell MP John Battle MP	Review of Trade and Industry Dept relations with NGOs? No plans for review but Dept. will play a full role in the Expert Panel on Sustainable Education
	13 Nov	C	W	Environmental Education	Martyn Jones MP Estelle Morris MP	Funds allocated by DfEE for EE? Decision for schools under LMS but they can use the School Effectiveness Grant
	18 Dec	C	W	Sustainable Development	Eric Clarke MP John Prescott MP	Response to Third Report of Govt SD Panel? Positive response incl.: "new EE Panel", chaired by Sir Geoffrey Holland; CEE to draft code of good practice; increasing Environmental Action Fund
	18 Dec	L	W	Sustainable Development: Government Panel's Report	Lord Borrie Baroness Hayman	When will response to Third Report of Govt SD Panel be published? Today. Positive response incl.: "new EE Panel", chaired by Sir Geoffrey Holland; CEE to draft code of good practice; increasing Environmental Action Fund
1998	31 Mar	C	W	Development Awareness Working Group	Maria Fyfe MP Clare Short MP	Purpose and membership of this group? Govt. attaches great importance to this. Members listed include DEA and CEE
	21 Apr	L	W	Development Awareness Working Group	Lord Watson of Invergowrie Lord Whitty	Details of aims and membership of this group? Terms of reference to advise DfID on strategy. Members listed include DEA and CEE
	20 May	C	W	Environmental Education (Wales)	Gareth Thomas MP Win Griffiths MP	Role of EE in Wales? EE important to deliver SD policy. EE Council for Wales developing EE strategy for Wales & launching first phase of environment Network centres
	4 Jun	L	S	School Standards and Framework Bill	Baroness Blackstone	Provision for spiritual, moral, social and cultural development in schools only possible after recommendations of advisory groups on PSHE, creative and cultural education and SD education

Year	Date	House	Type	Topic or Bill	Principal Actor(s)	Summary
1998	19 Jun	C	W	World Citizenship	Peter Bottomley MP Tony Blair MP	Departmental contributions to world citizenship education? DfEE est. Advisory Group on Education for Citizenship and the Teaching of Democracy in Schools; Advisory Panel on SD Education considering relationship between citizenship education and ESD
	3 July	C	W	Further and Higher Education (Environmental Awareness)	David Kidney MP Kim Howells MP	Policies on env. awareness in FE/HE? The FE Funding Council encourage following of Toyne Report; HEFCE conduct env. audits; awaiting outcomes of SD Education Panel with interest.
	3 July	C	W	Teachers (Science and Mathematics)	Phil Sawford MP Estelle Morris MP	Question on teacher supply. Answer includes list of advisory panels since 1994 including SDEP (since Feb 1998)
	31 July	C	W	Non-Departmental Public Bodies	Paul Burstow MP Alan Meale MP	How many NDPBs set up since May 1997? Four including the SDEP
	22 Oct	C	W	Pubic Bodies	David Heathcoat-Amory MP Peter Kilfoyle MP	Request details on NDPBs set up and abolished since May 1997. SDEP listed as: Expert Panel on Sustainable Development Education
	15 Dec	C	W	Environmental Skills	Michael J Foster MP Charles Clarke MP	Has SDEP identified environmental skills? Panel made two submissions to QCA. Forum for the Future publishing Panel outputs on SD in HE on design, business and teacher education
1999	18 Jan	L	S	Citizenship and Democracy	1. Baroness Young 2. Lord Northbourne 3. Baroness Blackstone	1. Call for broader definition of citizenship to include SD 2. Hope that competing priorities can be co-ordinated successfully by QCA's Preparation for Adult Life Group 3. Government has launched the Children's Parliament on the Environment
	10 Feb	C	W	Public Bodies	Alan Meale MP	The SDEP is among those that publishes its agenda and minutes
	19 Mar	C	W	National Curriculum	Joan Walley MP Charles Clarke MP	Implementing recommendations of SDEP? QCA asked to take them into account; will inform consultation on Nat. Curric. 2000
	23 Jun	C	W	Agency Targets (NI)	Steve McCabe Mo Mowlem	Targets set for the Environment and Heritage Service? List includes "Publish an EHS strategy for environmental education"
	30 Jun	C	W	Sustainable Development: Education Panel	David Chaytor MP Charles Clarke MP	Response to SDEP? Pleased with Panel's work, met Chair who will meet head of TTA and Ofsted. Out-of-school education addressed as well as curriculum recommendations to follow up
	7 July	C	S	Wildlife Protection	Alan Meale MP	Govt. approach to wildlife conservation blends statutory framework with biodiversity action plans and EE, i.e. a participative approach through partnerships between the public and private sectors
	19 July	C	W	Public Bodies	Alan Meale MP	SDEP listed among NDPBs

Year	Date	House	Type	Topic or Bill	Principal Actor(s)	Summary
1999	20 July	C	S	National Curriculum (Sustainable Development)	Peter Luff MP Charles Clarke MP	Support for work of SDEP but concern that enough detail is given so subjects can address SD. Reassurance that SD is at the heart of revised Nat. Curric. Cites CEE's positive response to proposals
	4 Nov	C	W	Citizenship Curriculum	Cynog Dafis MP Jacqui Smith MP	Will new Citizenship Curriculum address global citizenship and SD? Yes it will; guidance will also be made available to schools
2000	9 Feb	C	W	School Grants	Bob Russell MP Stephen Timms MP	Details of projects for which schools can receive landfill tax credits? Includes education on sustainable waste management.
	15 Feb	C	W	Citizenship Studies	Austin Mitchell MP Jacqui Smith MP	Request for details. QCA consulted widely on Citizenship and PSHE. Programme in 2002 to include: world as global community, political, economic, environmental and social implications of this, UK relations with EU, Commonwealth and UN
	15 Jun	C	W	National Curriculum (International Dimension)	John Bercow MP Jacqui Smith MP	Contents of Int. Dimension of NC with ref. to Values and issues? Cites 'Values, aims and purposes' section of NC Handbook. Education is a route to, among others, personal well being and SD
	11 Dec	C	S	Address in Reply to Her Majesty's Most Gracious Speech	Baroness Andrews	Speech in favour of New Opportunities Fund helping schools forge external partnerships, inc. environmental clubs. Hopes at next election Govt. may broaden 'triple priority' of education x3 to "learning, learning, learning"
2001	28 Feb	C	S	Environment Agency Learning Initiatives	Tim Boswell MP Jacqui Smith MP	Plans to implement EA's "The Business of Learning—Investing in a Sustainable Future"? Discussing with DETR how this can complement the work of the SDEP
	14 Mar	C	W	Environmental Education (Int Dev)	Helen Jackson MP Chris Mullin MP	Support for EE in development projects? Yes, EE is vital, Govt. spent £11.8 million over last 4 years on EE projects
	23 Apr	C	W	School Curriculum (Environmental Issues)	Damian Green MP Jacqui Smith MP	Steps taken to ensure environmental issues are in the curriculum? Sustainable Development Education (SDE), includes env. issues & has been part of the National Curriculum since September 2000
	16 Nov	C	S	Public Bodies	Mark Oaten MP	What's to stop the SDEP, among others, publishing minutes?
2002	8 Feb	C	W	Environmental Conservation	Mike Hancock MP Ivan Lewis MP	Resources on env. conservation for school children? "Pupils' statutory entitlement to SDE" is covered by education spending & Env. Action Fund supports ESD. Growing Schools coming soon.
	11 Feb	C	W	Fair Trade Fortnight	Mark Lazarowicz MP Ivan Lewis MP	Is Education and Skills Dept. encouraging participation in FTF? FTF supports SD education. Schools choose whether and how to take part. DfID helps fund the campaign.

Year	Date	House	Type	Topic or Bill	Principal Actor(s)	Summary
2002	14 May	L	S	Education Bill	Baroness Ashton	"…we must recognise the importance of the school as part of the sustainable development of our communities"
	12 July	L	S	Sustainable Development	Baroness Farrington Lord Warner	EE mentioned as part of overseas work of Botanic Gardens Conservation International and by Darwin Initiative-funded projects
	18 July	C	W	Teaching Environment and Conservation	Ian Liddell-Grainger MP Michael Meacher MP	Financial resources from Defra for this? EAF supports understanding & awareness of env. issues; covered in NC especially Science, Geography & Citizenship; Defra with DfES supports WWF schools project on WSSD and the SDEP
	31 Oct	C	W	Environmental Action Fund	Colin Breed MP Alun Michael MP	How much was spent on the EAF. "we have allocated the full resource of the Fund to deserving biodiversity and sustainable development education and awareness raising projects"
2003	20 Jan	C	W	Sustainability	Jim Cunningham MP Michael Meacher MP	Steps by Defra to promote understanding of UK citizens of global impacts of their actions? EAC funds work by voluntary groups on ESD aimed at adults, schools and communities
	6 Feb	L	W	Development Education	Baroness Ashton Earl of Sandwich	Current definition of DE and funds provided? Aim to develop pupils' knowledge & understanding of global issues, implications; effects and "develop the skills and attitudes to contribute to SD"
	21 May	C	S	Fly Tipping	Gregory Baker	Draws attention to the ESD Sub-Committee of the Environmental Audit Committee that is "considering ways in which sustainable development can be promoted through education"
	19 Jun	C	W	Eco-Schools	David Kidney MP Charles Clarke MP	Any use of Eco-Schools esp. for citizenship? No plans to use this network; teachers use the delivery methods that they choose
	17 Dec	C	W	Environmental Awareness	John Pugh MP Charles Clarke MP	Does DfES promote this? It's part of ESD: in Science, Geography, D&T, Citizenship. DfES also has an SD Action Plan incl. ESD
	18 Dec	C	W	Sustainable Development	Phil Willis MP David Miliband MP	How does NC promote awareness of SD? ESD is statutory part of Sci, Geog, D&T, Cit. QCA encourage teachers to include SD in all subjects and provide on-line guidance to teachers
2004	20 Jan	C	S	Learning & Skills (Somerset)	Stephen Twigg MP	Pays tribute to SDEP's report, "Learning to last" and lead taken by Somerset College sharing "best practice in sustainable education"
	29 Jan	C	W	Landfill Tax Credit	Sue Doughty MP David Miliband MP	Concern for EE programmes losing funding with changes to LTC Scheme. Some EE will remain eligible; no plans to increase funds
	4 Feb	C	W	Landfill Tax Credit Scheme	Peter Ainsworth MP Elliot Morely MP	How much LTCS spent on EE in schools & impact of changes? Figures given. Some EE still eligible, e.g. biodiversity. Waste Resources Action Programme taking forward waste awareness

Year	Date	House	Type	Topic or Bill	Principal Actor(s)	Summary
2004	12 Feb	C	W	Sustainable Development (Int. Dev)	John Randall MP Gareth Thomas MP	Plans to mark UN Decade for ESD? Funds for this in various countries – refers to UNESCO website
	13 Feb	C	W	Environmental Education	Helen Clark MP Elliot Morley MP	Will funding for EE in schools change as LTCS is amended? No, EE forms part of the NC. The LTCS funds non-curricular projects
	12 May	C	W	Sustainable Development Strategy	Phil Willis MP Charles Clarke MP	Progress on DfES SD Strategy? Launched last September – 4 points, first is ESD
	24 May	C	W	Recycling	Parmjit Dhanda	Plans to promote recycling in schools? In Citizenship; part of ESD
	11 May	C	W	British Wildlife	Andrew Rosindell MP Ben Bradshaw MP	Defra support for wildlife charities? EAF supports these, projects include environmental awareness and ESD
	23 July	C	W	Green Minister	John Horam MP David Miliband MP	Activities of DfES Green Minister? DfES leads on ESD; the SD action plan promotes this and raises “public awareness and understanding of sustainable development”
2005	11 Jan	L	S	Education Bill	Lord Hunt	Led debate in favour of value of out-of-classroom learning and its impact on well-being, environmental awareness, etc.
	3 Mar	L	W	Waste Implementation Programme	Baroness Howe Lord Whitty	Funds allocated to waste education work? Figures include £30 on “informal methods of EE” by Waste Resources Action Programme
	16 Mar	L	S	Education: Tomlinson Report	Baroness Massey	Emphasises early years and commends current practice in citizenship, SD and the global dimension that can attract young people and is “important for their development and for our future”

Appendix V: Rejection e-mails from proposed research settings

Vi: From the initial school setting

From:
Sent: 10 October 2011 00:16
To: Paul Vare [learning4l@aol.com]
Subject: Research Meeting(s) Tomorrow (Tuesday 11th Oct)

Hi Paul,

We need to meet up and discuss the way we can move forward with the research. Recent modifications to the school improvement plan and management priorities may make it difficult to proceed as planned.

I'm free to meet with you period 5 2:10 - 3:15 if you like

Thanks

Vii: From the university setting

From:
To: learning4l <learning4l@aol.com>
Sent: Fri, Feb 24, 2012 12:02 pm
Subject: FW:

Dear Paul,

I understand that you approached the University seeking permission to conduct activity theory research.
After some consideration, the University has decided that for now, given the other priorities upon our time, we are not in a position to support this research.

Good luck with your work

Appendix VI: Question Schedule

Question Schedule

Thank you very much for agreeing to do this interview. To begin with please read and sign the Permission Form. It's important to note that you are speaking on behalf of yourself and your experience as a school teacher, not on behalf of your school.

I'm using an approach called activity theory that looks at the activity within an organisation as if it is a system. This system has the following elements: Subject – Object – Tools – Division of labour – Rules/culture – Community (Diagram)

1. Defining the **Object**:
    a. To what extent is your involvement in the XXXX project part of a broader push for sustainability across the school?

    b. What are your aims in that direction?

    c. Does the school have any declared aims on sustainability?

    d. The previous Government talked of its aim of making every school a sustainable school by 2020? Is the concept a sustainable school something you've heard of?

    e. Do you have your own definition of sustainability or sustainable development?

    f. What's your vision of a sustainable school? What's your ideal?

    g. How far away from that are you at the moment?

    h. I'm going to explore a number of features of the school system and I'd like to know if you think anything is holding you back from your vision of a sustainable school – also what is promoting it?

    i. What do you feel would be the outcomes for your students?

2. About the **tools** at your disposal, I'd include in this:
    a. The curriculum and syllabus within that

    b. CPD for you and/or colleagues

    c. Your teaching methods and style, including equipment such as whiteboards, blackboards, ICT, outdoor activities. Project work, etc. (pedagogy)

    d. Student assessment including formative M&E

    e. Student participation

    f. Any other tools that I've not mentioned?
        - Do you see any contradictions or a need for change?
        - Do you see any opportunity for change?
        - What's holding this back?

3. Now, about the **division of labour** within the school:
    a. Who is involved in determining the vision of the school?

    b. In particular, who helps to make it more or less sustainable? (Through policy or practice)
        - Do you see any contradictions or a need for change?
        - Do you see any opportunity for change?
        - What's holding this back?

4. Now to **rules, regulations and culture** (unspoken rules or ways of doing things)
    a. Are there any regulations or legal requirements that help or hinder the school in becoming more sustainable?
        - Do you see any contradictions or a need for change?
        - Do you see any opportunity for change?
        - What's holding this back?

    b. How about school rules?
        - Do you see any contradictions or a need for change?
        - Do you see any opportunity for change?
        - What's holding this back?

    c. And what of the school ethos or culture?

    d. Is culture something that is declared clearly – is the reality the same as the declaration or is that more of an aspiration?
        - Do you see any contradictions or a need for change?
        - Do you see any opportunity for change?
        - What's holding this back?

5. Lastly, I'd like to think about **community**, that can be within the school, (teaching staff, assistants, administrators, senior managers, governors, etc.) and the wider community beyond the school, (parents, charities, businesses, neighbours, etc.)
    a. Do you see their involvement as part of or contributing to sustainability?

    b. Do they detract in any way?
        - Do you see any contradictions or a need for change?
        - Do you see any opportunity for change?
        - What's holding this back?

6. Have I left anything out?

7. Are there contradictions between the way that these different elements operate? I'm going to look for this when I analyse this data but maybe you can already see something?

8. Can you suggest any colleagues who might also help by providing an interview? (I'm looking for those who are either very committed to sustainability in the school or not at all interested/related to it)

Thank you!

Appendix VII: Consent Form

Learning Systems: Exploring the roadblocks and opportunities for sustainable schools (Draft title)

Consent Form

I am conducting research as part of my EdD (Doctor of Education) studies at the University of Bath where my supervisor is Dr Stephen Gough.

Thank you for agreeing to take part in this research. I would like to emphasise that:

- Your participation is entirely voluntary
- You are free to refuse to answer any questions
- You are free to withdraw at any time

I will be recording and transcribing this interview and will send the transcription back to you for checking. Once agreed by you, the transcription and any notes will remain confidential and any extracts from this data will be anonymous, identified only by means of a pseudonym. In this way, neither you nor your schools will be identifiable from any research report, thesis or publication arising from this work.

Please sign this form to show that you have read and understood the points above:

_____ (Signed) _____ (Date)

_____ (Printed)

Please send me an electronic copy of the thesis:

YES NO (Please circle one)

e-mail address: _____

My contact details:
Paul Vare
xxxxxx
xxxxxx
xxxxxx
xxxxxx
xxxxxx

(Interviewee to sign one copy and retain one copy)

Appendix VIII: Website Analysis

School (Pseudonym)	Phase	Home page			ESD/Eco page(s)	Related Issues				Other
		Logo	Tab	Text		Int'l	Health	Pupil voice	Local cmnty	
Valley	11-18	X				X	X	X	X	
Broadreach	11-18					X			X	
Royal	11-16					X	X			
Farm	11-18				X	X			X	
Newhouse	11-16					X	X			
Kings	11-18		X		X					
Manor	4-11	X	X		X	X	X			
Thatchwell	4-10		X		X			X		Links to related external sites provided
Park	4-11									Mentioned as responsibility of teacher
Abbey	9-12	X				X	X			Link to NFSS-type sustainability policy
New	3-9	X							X	ESD featured in curriculum pages
Strawhill	4-9							X		Dedicated Forest School page

NB This is solely an analysis of material on permanent websites (i.e. not news stories) and thus provides an indication of whole-school priorities.

Appendix IX: Sample Schools' Ofsted Data

School	Phase	Date	Score	What the school needs to do to improve further
Valley	11-18	2012	3(1)	**Improve the overall quality of teaching from satisfactory to good or better by:** − planning learning activities that meet students' differing needs and for students to have more opportunities to be active learners for the majority of every lesson − ensuring all students, particularly the most able, are consistently challenged in lessons − improving assessment, including the marking in books, to identify how well students are achieving, giving purposeful advice on how to improve and then allowing students time to respond to this advice. **Develop leadership and management by:** − ensuring all leaders use student performance information to identify any underperformance and plan for rapid improvements − ensuring that monitoring by all leaders is rigorous, regular and focuses sharply on the quality of teaching, assessment and learning
Broadreach	11-18	2007	1 (1)	Ensure that high quality teaching, which meets the needs of individual students, is provided consistently throughout the school
Royal	11-16	2009	3 (3)	- Improve the rate of students' progress by ensuring that good and outstanding practice in teaching is extended more widely - Make better use of information about students' attainment to ensure that teaching meets their individual needs - Mark students' work more effectively to give them clear guidance about how they can reach their targets
Farm	11-18	2009	1 (1)	Improve the progress made by boys to the extremely high level achieved by girls
Newhouse	11-16	2013	4 (3)	**Improve the proportion of good or better teaching and ensure that it meets the needs of all students by insisting that:** - teachers use information about students' abilities to plan lessons that meet all their needs - all teachers regularly check the progress students are making, giving extra help or more challenge when necessary teachers give students high-quality feedback about how well they are doing and what specific things they need to do to improve - staff manage behaviour consistently well in all lessons so that there are no disruptions to learning teachers make sure that all students in every lesson know what they are learning and what they need to do to be successful - teachers in all subjects develop students' skills in reading, writing and mathematics more effectively - opportunities to develop students' spiritual, moral, social and cultural understanding within lessons are maximised. **Significantly raise the proportion of students achieving five or more GCSEs at grades A* to C,**

				including English and mathematics, by: - accelerating the progress that all students make in mathematics - making sure that the achievement of disabled students, those with special educational needs and those eligible for the pupil premium improves quickly - increasing the proportion of A and A* grades that students achieve by challenging the more-able students effectively **Make sure that all subject leaders are equally effective in improving the quality of teaching and raising standards of achievement** **Improve the effectiveness of the governing body in order to increase its capacity to challenge the school and hold it to account** An external review of governance should be undertaken in order to assess how this aspect of leadership and management may be improved.
Kings	11-18	2011	2	**Improve the quality of teaching by ensuring:** - consistency in marking - applying assessment procedures - use students' responses to questions to draw others into discussions **Remove the variation in performance between subjects by ensuring middle leaders:** - ensure best practice - review and evaluate their department - set appropriately challenging targets **Improve overall achievement in the sixth form by:** - ensuring robust systems to monitor student progress - monitoring actions required for further improvement
Manor	4-11	2013	2 (3)	**Eliminate any remaining weaker teaching and raise the quality of teaching from good to outstanding by ensuring:** - the outstanding practice already evident in the school becomes widespread and that all teachers develop skills as good as their most able colleagues - all teachers consistently match learning to individual pupils' ability in order to accelerate their rates of progress.
Thatchwell	4-10	2012	2 (2)	**Improve the consistency of teaching in Key Stage 2 and increase the proportion of outstanding teaching by making sure that:** − teachers in Years 3 and 4 build on the high standards pupils achieve in Year 2 − teachers set demanding work for pupils of all abilities, particularly for the more able pupils − teachers have the opportunity to share and learn from the outstanding practice that exists within the school

				− all teachers use marking effectively on a day-to-day basis to let pupils know how to improve their work. **Raise achievement in mathematics by:** − providing more opportunities for pupils to develop their problem-solving skills − making sure pupils have enough opportunities to practise their numeracy skills in different subjects
Park	4-11	2010	2 (3)	**Improve quality of provision in EYFS and accelerate children's progress by:** - providing support to staff - raising expectations of children's potential to be confident learners - intervening in children's play to help them make the most of their choices **Ensuring more capable pupils make good progress by:** - giving them sufficiently challenging tasks - enabling them to undertake more independent problem-solving and research - involving them more in setting their own progress and setting targets
Abbey	9-12	2011	2	**Accelerate the progress of boys in writing by:** ensuring that they are fully engaged and interested in learning improving the standards of handwriting, spelling and the use of grammar providing a consistent approach to the teaching of handwriting **Make all teaching good or outstanding by:** planning learning tasks that specify exactly what different groups are to learn and how teaching assistants will help them ensuring that introductions are not too long so that lessons begin at a brisk pace and pupils get on with their work quickly
New	3-9	2009	2	Increase the focus on the quality of pupils' learning in mathematics lessons in order to identify and implement appropriate strategies to raise standards and increase the rate of progress pupils make in mathematics
Strawhill	4-9	2012	2	**Accelerate the progress of boys in writing by:** ensuring that they are fully engaged and interested in learning improving the standards of handwriting, spelling and the use of grammar providing a consistent approach to the teaching of handwriting. **Make all teaching good or outstanding by:** planning learning tasks that specify exactly what different groups are to learn and how teaching assistants will help them ensuring that introductions are not too long so that lessons begin at a brisk pace and pupils get on with their work quickly

Appendix X: Codes

Final list after non-assigned codes have been worked into the activity system framework

1 Objects and outcomes: (13)

a. Saving money
b. Behaviour change - forming 'habits'
c. Definitions of SD
d. Personal definitions of a sustainable school
e. Energy saving only
f. SD as an underpinning philosophy
g. Simply a list of activities
h. Raising awareness
i. Engaging the 'hard to reach'
j. Unrealistic expectation
k. School improvement/grades etc. – top priority
l. Students' skills
m. Conflicting priorities

2 Tools/mediating artefacts: (22)

a. Curriculum – not joined up
b. Student participation - groups set up by staff
c. Extra-curricula - staff own time
d. Extra-curricula - students' own time
e. CPD - no funds/too expensive
f. (Need for) incentives
g. Campaigns (e.g. no lights/woolly jumper days/eco week) Eco Day (cf.5 - community)
h. 'Selling' the idea (social marketing) – selling the school (2h.1)
i. Eco-spies
j. Straight (existing) curriculum content
k. IT undermines energy saving
l. VLE
m. Using the school as an example
n. Curriculum linking/Curriculum efficiency
o. Punishments
p. Award schemes as processes
q. Existing frameworks – ECO Schools; Forest Schools; LOtC
r. Monitoring (energy, etc.)
s. Risk taking (cf. 4 - Culture)
t. International links
u. ~~Leading by example (e.g. recycling materials)~~ (To 2m)
v. Assemblies

3 "Community" (9): These are in fact "artefacts" of the activity system

a. Sustainability as a means to connect to community (not *vice versa*)
b. Business community supporting sustainability
c. Links to other schools/transitions
d. Technical support (SWEA/WCC)
e. Real world links
f. Participating in community processes
g. Reaching parents (cf. 2 - Newsletter)
h. ~~Work involved in making links~~ (To 5e)
i. Media influence

4 Division of labour (9)

a. Role of senior management
b. Role of Bursar/Business Manager
c. Site managers
d. Office staff – and others
e. The 'lone' teacher (or not)
f. Distributed leadership/multiple commitments
g. Pupil-led (cf. 2a) and numbers involved
h. Governors
i. Parents

5 Rules and culture (14)

a. Government impact - withdrawal of policy support
b. Environmental certification (cf. Tools)
c. Eco Code/Forest school rules
d. School rules/mission
e. Shift in staff/school culture
f. Planning restrictions
g. Feed-in tariff changes
h. Barriers: data protection, health and safety
i. Information sharing or lack of
j. Influence of surrounding culture (cf. community?) and kids?
k. Accountability/Ofsted
l. Not a problem
m. Shift in new teachers – less interested
n. Managerialism

6 Subject (1)

Reflections on why respondents are involved in ESD

7 Other Themes (1)

Impact of interview process on interviewees' practice

Themes clustered under other codes (13)

~~Interested people only~~ (4e)
~~Time/priority (Linked to Object?)~~ (3f)
~~Actual numbers involved~~ (4g)
~~Media – background awareness~~ (4i)
~~Narrow (energy) focus makes whole SD drive vulnerable~~ (1e)
~~ECO Schools as useful framework~~ (2q)
~~League tables/grades – most important~~ (1k)
~~Management vs leadership~~ (4f cf. 5n)
~~No barriers perceived – except Govt.~~ (5a)
~~Money – lack of for CPD~~ (2e) – ~~in general~~ (1m)
~~The whole story/process~~ (2d; 2c)
~~Links across headings – family eco meetings~~ (3g)
~~Scripts – things unsaid (describing assemblies) in transcription~~ (2v)

Words searched: hope; isolation; brilliant; fun; transform(ation)

Appendix XI: Perspective Document

Are There Inherent Contradictions in Attempting to Implement Education for Sustainable Development in Schools?

15

Perspective Document

Last year, as part of my research enquiry for a Doctor of Education at Bath University, a number of teachers and head teachers in Gloucestershire and Worcestershire kindly agreed to talk with me about their work as it relates to making their school more sustainable (carbon-efficient, EcoSchool, etc.). You have received this document because you were one of those kind individuals!

This *Perspective Document* comprises a number of statements taken from those interviews so some of your own words are almost certainly included here. Before concluding my research, I would be grateful for some feedback on these statements.

As well as confirming the extent to which you agree or disagree with each statement, this should help to highlight areas where conflict or contradiction may exist between different approaches. This exercise should take no more than five minutes.

Please indicate your level of agreement by entering a number between 1 and 5 in the box next to the statement where:

1 = Agree Strongly *2 = Agree* *3 = Undecided*

4 = Disagree *5 = Disagree strongly*

Please complete the form and return it to me at Learning4L@aol.com at your earliest convenience but no later than Wednesday 17th April.

Many thanks

Paul Vare, 28th March 2013

	Statements	**Enter: 1,2,3,4 or 5**
1	Government support is needed to drive schools to act sustainably; if sustainability was at the core of what the Department for Education wanted, it would be at the core of schools	
2	It's important that our pupils have a balanced education across a full range of subjects without bias	
3	Driving sustainability in school requires voluntary effort – it's important to spend our own time on this to make it work	
4	There are too many rules (health and safety, data protection, etc.) and associated paperwork to do things differently these days	
5	There should be an identified staff member in a sustainable school, a person with the vision; you need somebody in overall charge	
6	Technology like photo-voltaic arrays, wind turbines and automatic switches are important as demonstrations to our students	
7	It's a good idea to have positive reinforcements such as 'green awards' built into our merit system	
8	Sustainability is about 'mainstreaming' behaviour – forming habits so that it's part and parcel of what the school does	

9	Energy is the most important component of sustainability; a sustainable school should aim to be as carbon neutral as possible	
10	Sustainability should be inbuilt so it's something that you do automatically, subconsciously, without thinking	
11	Sustainability should be spread equally throughout the school, involving *all* students	
12	Reducing costs, particularly energy costs, is the major impetus for being a sustainable school	
13	Sustainability needs to be prevalent across everything we do, otherwise by omission, we're saying it's not as important as other things	
14	People don't like Government edicts telling them what to do – and anyway, we know policies change every few years so one can work around them or simply wait them out	
15	Sustainability means facilitating pupil-led action, giving them opportunities to participate as monitors, watchdogs, committee members, etc.	
16	We shouldn't wait to be told what to do by Government because we're the professionals	
17	We should ensure that sustainability underpins all subjects right across the curriculum, otherwise it remains optional and can be missed	
18	All staff should be trying equally to integrate sustainability into their existing work even if things don't go as planned, it's innovating that matters	
19	Our main task is to give pupils experiences of the world beyond the classroom, that includes contact with nature and the world of work	
20	Sustainability should simply be part and parcel of what the school does; it's everybody's responsibility	
21	Sustainability is not about the 'bling' of technology, it's about the school ethos, such as being caring and sharing	
22	An effective approach is to run a 'name and shame' campaign to improve behaviour and for pupils to tell the teachers off!	
23	Thinking skills are the essential elements of learning for sustainability like independent inquiry, creative thinking, problem solving and working collaboratively	
24	It's important to look at the bigger picture; as a school we should aim for a holistic view of sustainability	
25	The aim is to develop young people that question, that want to change things; our young people should have their own opinion	
26	The main value of sustainability is as a vehicle for attracting young people who might otherwise be excluded or disaffected	
27	We've got to educate young people to be the ones who change things to make society more sustainable	
28	As a teacher, I'm not here to say, 'this is how it *should* be,' it's getting pupils to think about things	
29	Our goal has to be student achievement – Ofsted only benchmark us on whether children can read, write and count	
30	Spontaneous pupil-led action taking place around the school without any teacher involvement is a key indicator of success in a sustainable school	

Thank You!

Appendix XII: Perspective Document Feedback Results

Perspective Document Feedback Q Nos.	PD 1	PD2	PD3	PD4	PD5	PD6	PD7	PD8	PD9	PD10	PD11	PD12	PD13	PD14	PD15	Totals (n=11)	Dilemma Scores (Max. = 22)
1	1		1	1	1		1	1	0	1	-1		1		1	8	*17*
16	1		1	0	1		1	1	1	1	1		1			9	
2	1		1	1	1		1	1	1	1	1		1		1	11	*19*
17	1		1	0	1		1	1	1	1	0		1		0	8	
3	1		1	1	0		1	0	1	1	1		1		1	9	*16*
18	1		0	0	-1		1	1	1	1	1		1		1	7	
4	-1		-1	0	1		1	0	1	-1	0		1		1	2	*13*
19	1		1	1	1		1	1	1	1	1		1		1	11	
5	1		1	1	1		1	1	1	1	1		1		0	10	*21*
20	1		1	1	1		1	1	1	1	1		1		1	11	
6	1		1	1	1		1	1	1	0	1		0		1	9	*20*
21	1		1	1	1		1	1	1	1	1		1		1	11	
7	1		1	-1	1		1	1	1	1	1		1		1	9	*8*
22	1		1	0	1		0	-1	-1	-1	-1		1		-1	-1	
8	1		1	1	1		1	1	1	1	1		1		1	11	*18*
23	1		1	-1	1		1	1	0	0	1		1		1	7	
9	1		0	0	1		1	1	-1	1	1		1		0	6	*15*
24	1		0	0	1		1	1	1	1	1		1		1	9	
10	1		1	-1	1		1	0	1	1	1		1		1	8	*19*
25	1		1	1	1		1	1	1	1	1		1		1	11	
11	1		1	1	1		1	1	1	1	1		1		1	11	*8*
26	1		-1	-1	1		-1	-1	-1	1	-1		1		-1	-3	
12	1		1	-1	0		-1	-1	-1	-1	-1		1		-1	-4	*6*
27	1		1	0	1		1	1	1	1	1		1		1	10	
13	1		1	0	1		1	1	1	1	0		1		1	9	*18*
28	1		0	0	1		1	1	1	1	1		1		1	9	
14	1		1	0	0		0	-1	-1	1	-1		1		1	2	*2*
29	1		0	-1	1		-1	-1	1	1	-1		1		-1	0	
15	1		1	1	1		1	1	1	1	1		1		1	11	*21*
30	1		1	0	1		1	1	1	1	1		1		1	10	

Appendix XIII: Contradictions Summary Table

Level and nature in relation to activity system (Engestrom)		Summary of contradiction	Strength (1-6)	Type (Winter)
Primary	**Object**	**1. Second nature *versus* questing for change**	**2**	Problem
		2. Habit-forming *versus* critical thinking	**2**	Problem
		3. Focus on energy *versus* holistic view	4	Judgement
		4. Focus on costs *versus* impact on young people	6	Judgement
		5. Focus on all pupils *versus* strategy for inclusion	6	Judgement
	Tools	**6. Technology *versus* ethos**	**1**	Judgement
		7. Maintaining balance without bias *versus* sustainability as underpinning concept	**2**	Problem
	Division of labour	**8. Lead co-ordinator *versus* shared responsibility**	**1**	Judgement
Secondary	**Tools – Object**	**9. Pupil-led *versus* staff-facilitated action**	**1**	Judgement
		10. Omnipresence of sustainability *versus* thought-provoking	**2**	Problem
	Rules – Division of labour	11. Additional effort *versus* integrated to workload	3	Judgement
	Rules/culture –tools	12. Bureaucratic barriers *versus* need to get students out more	4	Judgement
		13. Positive reinforcement (use of 'carrots') *versus* naming and shaming (use of 'sticks')	6	Judgement
Tertiary	**Policy – Tools**	14. Policy-led *versus* professional autonomy	3	Ambiguity
	Policy – Object	15. Necessity to reflect policy *versus* adopting wider view of policy	5	Ambiguity